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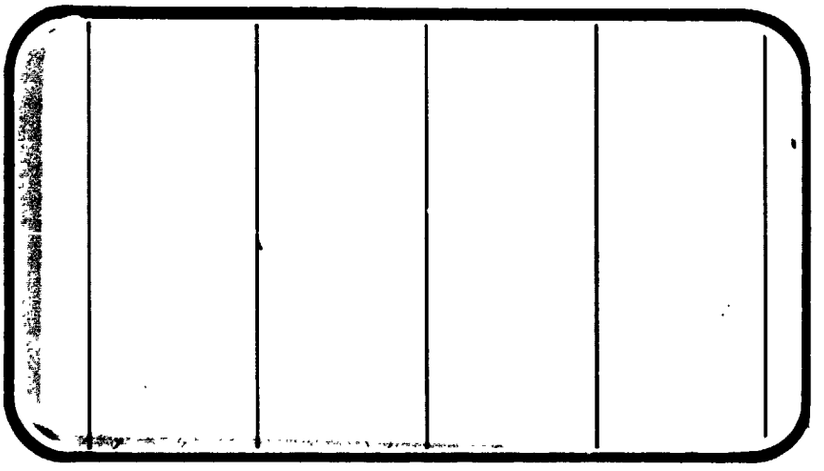

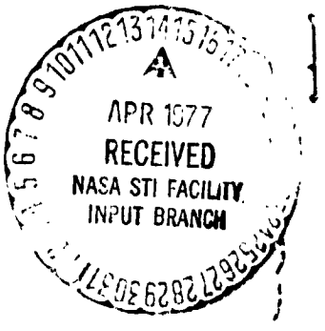

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT

JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANagement services

SPACE DIVISION CHRYSLER CORPORATION

March 1977

DMS-DR-2182
NASA CR-151,062

SUPERSONIC CONTROL EFFECTIVENESS FOR FULL AND PARTIAL SPAN ELEVON CONFIGURATIONS ON A 0.0165 SCALE MODEL SPACE SHUTTLE ORBITER TESTED IN THE LaRC UNITARY PLAN WIND TUNNEL (LA49)

Prepared under NASA Contract Number NAS9-13247

by

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New Orleans, La. 70189

for

Engineering Analysis Division

Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number:	LaRC UPWT (Leg 2) 1101
NASA Series Number:	LA49
Model Number:	089B-139
Test Dates:	April 24 through 26, 1974
Occupancy Hours:	30

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Chrysler Corporation Michoud Defense-Space Division assumes no responsibility for the data presented other than display characteristics.

SUPERSONIC CONTROL EFFECTIVENESS FOR FULL AND PARTIAL SPAN ELEVON CONFIGURATIONS ON A 0.0165 SCALE MODEL SPACE SHUTTLE ORBITER TESTED IN THE LARC UNITARY PLAN WIND TUNNEL (LA49)

ABSTRACT

An experimental investigation has been conducted in the NASA-Langley Research Center Unitary Plan Wind Tunnel (Leg 2) on an early version of the space shuttle orbiter (designated 089B-139) 0.0165 scale model to systematically determine both longitudinal and lateral control effectiveness associated with various combinations of inboard, outboard, and full span wing trailing edge controls. This report presents results from supersonic investigations conducted from April 24 through 26, 1974. The test Mach numbers were 2.5 and 4.63 over an angle of attack range from -4° to 4° at 0° sideslip.

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C) CLM versus ELV-LI, DCL/DE, DCD/DE, DCLMDE versus ALPHA

D) CLM versus ELV-LO, DCL/DE, DCD/DE, DCLMDE versus ALPHA

E) DCL/DE, DCD/DE, DCLMDE versus ALPHA

F) DCY/DA, DCYNDA, DCBLDA versus ALPHA

G) DCMIDE, DCLMDE, DCMI/F versus ALPHA

H) DCMODE, DCLMDE, DCMO/F

NOMENCLATURE
General

SYMBOL	MNEMONIC	DEFINITION
a		speed of sound; m/sec, ft/sec
C_p	CP	pressure coefficient; $(p_l - p_\infty)/q$
M	MACH	Mach number; V/a
p		pressure; N/m^2, psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$, N/m^2, psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
ψ	PSI	angle of yaw, degrees
ϕ	PHI	angle of roll, degrees
ρ		mass density; kg/m^3, $slugs/ft^3$
		Reference & C.G. Definitions
A_b		base area; m^2, ft^2
b	BREF	wing span or reference span; m, ft
c.g.		center of gravity
ℓ_{REF} $\bar{c}$	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m^2, ft^2
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis

SUBSCRIPTS

b	base
l	local
s	static conditions
t	total conditions
∞	free stream

NOMENCLATURE (Continued)

Body-Axis System

SYMBOL	MNEMONIC	DEFINITION
C_N	CN	normal-force coefficient; $\frac{\text{normal force}}{qS}$
C_A	CA	axial-force coefficient; $\frac{\text{axial force}}{qS}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_{A_b}	CAB	base-force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
C_{A_f}	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
C_m	CIM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS\ell_{REF}}$
C_n	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qSb}$
C_ℓ	CBL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qSb}$
		Stability-Axis System
C_L	CL	lift coefficient; $\frac{\text{lift}}{qS}$
C_D	CD	drag coefficient; $\frac{\text{drag}}{qS}$
C_{D_b}	CDB	base-drag coefficient; $\frac{\text{base drag}}{qS}$
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS\ell_{REF}}$
C_n	CLN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qSb}$
C_ℓ	CSL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qSb}$
L/D	L/D	lift-to-drag ratio; C_L/C_D
L/D_f	L/DF	lift to forebody drag ratio; C_L/C_{D_f}

NOMENCLATURE (Continued)

SYMBOL	MNEMONIC	DEFINITION
$C_{D_{\delta e}}$	DCD/DE	Slope of drag coefficient vs. elevon deflection curve; $dC_D/d\delta_e$, per degree
$C_{L_{\delta e}}$	DCL/DE	Slope of lift coefficient vs. elevon deflection curve; $dC_L/d\delta_e$, per degree
C_{ℓ_a}	DCBLDA	Slope of rolling moment coefficient vs. aileron deflection curve, $dC_\ell/d\delta_a$, per degree
$C_{m_{\delta e}}$	DCLMDE	Slope of pitching moment coefficient vs elevon deflection curve, $dC_m/d\delta_e$, per degree
$C_{Y_{\delta a}}$	DCY/DA	Slope of side force coefficient vs. aileron deflection curve, $dC_Y/d\delta_a$, per degree
$C_{n_{\delta a}}$	DCYNDA	Slope of yawing moment coefficient vs. aileron deflection curve, $dC_n/d\delta_a$, per degree
δ_a	AILRON	Aileron deflection angle; elevon deflection for roll control, $(\delta_{e_L} - \delta_{e_R})/2$, positive deflection left panel trailing edge down.
δ_e	ELEVTR	Elevator deflection angle; elevon deflection for pitch control $(\delta_{e_L} + \delta_{e_R})/2$, positive deflection trailing edge down
$\delta_{e_{L_O}}$	ELV-LO	Left outboard elevon panel deflection, degrees
$\delta_{e_{L_I}}$	ELV-LI	Left inboard elevon panel deflection, degrees
$\delta_{e_{R_I}}$	ELV-RI	Right inboard elevon panel deflection, degrees
$\delta_{e_{R_O}}$	ELV-RO	Right outboard elevon panel deflection, degrees
$C_{m_{\delta e_I}}$	DCMIDE	Slope of pitching moment coefficient versus inboard elevon deflection curve, per degree

NOMENCLATURE (Concluded)

SYMBOL	MNEMONIC	DEFINITION
$C_{m\delta_{e_o}}$	DCMODE	Slope of pitching moment coefficient versus outboard elevon deflection curve, per degree.
	DCMI/F	Ratio of the slopes of the inboard elevon pitching moment curve over the full span elevon pitching moment curve.
	DCMO/F	Ratio of the slopes of the outboard elevon pitching moment curve over the full span elevon pitching moment curve.
δ_{SB}	SPDBRK	speed brake deflection angle, degrees
δ_{BF}	BDFLAP	body flap deflection angle, degrees

INTRODUCTION

As a continuing effort to identify the most suitable space shuttle concept, a joint study between Langley Research Center, Johnson Space Center, and Rockwell International has been undertaken to determine if the independent operation of the four elevon surfaces of the orbiter could result in a more efficient use of available control power, reduced elevon hinge moments, and associated aeroelastic wing bending, or allow a more flexible flight profile without adverse control characteristics.

Therefore, an experimental investigation at subsonic and supersonic speeds was initiated at Langley to systematically determine both longitudinal and lateral control effectiveness associated with various combinations of inboard, outboard, and full span wing trailing edge controls for a shuttle orbiter configuration. Due to the unavailability of a current vehicle model, the model employed in this study was an 0.0165 scale earlier version of the orbiter designated by Rockwell International as configuration 089B-139. The differences between this configuration and the current design (vehicle 5) were not felt to be sufficient to alter the incremental effectiveness presented herein. This report presents the initial supersonic results obtained in the overall study. Utilizing the Langley Unitary Plan Wind Tunnel, the Mach numbers of the investigation were 2.5 and 4.63. Angle of attack was varied from about -4° to as much as 42° at 0° of sideslip. Transonic results are presented in the reference.

CONFIGURATIONS INVESTIGATED

The configuration tested was a 0.0165 scale model of a blend of Rockwell International Shuttle configurations consisting of a 089B configuration with a 139B configuration nose forward of fuselage station 500. A sketch and photographs of the model are shown in figures 2 and 3, respectively. Body base flap was fixed at 0° deflection.

Elevon controls were split at 0.60 b/2 giving the inboard and outboard segments approximately 53 percent and 47 percent of the total elevon area, respectively. The surfaces could be deflected in unison or as individual panels. Maximum range of deflection for each panel was from 0° to -40°. Combinations tested included: for pitch control, inboards only, outboards only and full span; for roll control, outboards, only with full span and inboard deflected for pitch control.

To expedite testing, the elevons were remotely controlled by four internal electric motors (see fig. 2c).

A complete description of model dimensional data is given in table III.

TEST CONDITIONS

The model was sting supported, with aerodynamic forces and moments measured by an internally mounted six-component strain gage balance. Model angle of attack was varied from about -4° to as much as 42° at an angle of sideslip of 0°. Reynolds number was constant at a nominal 2.0×10^{6} per foot. Angle of attack has been corrected for deflection of the sting and balance under load.

Transition strips 0.16 cm wide composed of No. 60 sand grit were located 1.0 inch aft of the apex of the fuselage and 0.5 inch (measured streamwise) aft of the wing and fillet and vertical tail leading edges.

Drag data presented herein represent gross drag in that measured drag is uncorrected for base pressure effects.

TEST FACILITY DESCRIPTION

The NASA LaRC 4 foot Unitary Plan Wind Tunnel (UPWT) is a closed-circuit continuous flow, variable density facility. The test section is 4 feet by 4 feet by 7 feet long.

Two tunnel legs are available for supersonic testing in the Mach number ranges 1.47 to 2.86 (Leg No. 1) and 2.29 to 4.63 (Leg No. 2). Leg No. 2 was used for this test. An asymmetric, sliding block nozzle position and total pressure setting provide the test Mach numbers at a specified Reynolds number. Reynolds number can be varied from 0.76 to 7.78 million per foot. Available stagnation pressure variation is 4.0 to 142 psia. Dynamic pressure variation is 95 to 1260 psf with normal operating stagnation temperature about 150°F in Mach modes 2 or 3 and about 175°F in Mach mode 4. The tunnel is equipped with a dry air supply, an evacuating system, and a cooling system. The facility power is approximately 83,000 horsepower.

Model mounting provisions consist of various sting arrangements, including axial (longitudinal), lateral (independent pitch and yaw), and roll movement with side wall support. A Schlieren system and oil flow visualization equipment are available. Data are recorded at the tunnel and reduced off-line at the Langley Computer Center. The tunnel is used for force and moment, pressure, and dynamic stability tests. Hot and cold jet effects and heat transfer have been studied in the UPWT.

DATA REDUCTION

Data was recorded at the facility and reduced off-line at the LaRC Computation Center. Longitudinal data are referred to the stability-axis system and lateral-directional data are referred to the body-axis system. All coefficients are normalized with respect to the projected wing area (excluding the fillet), mean aerodynamic chord or span, which are:

SREF = wing projected area = 0.732 ft.^{2}

LREF = wing mean aerodynamic chord = 7.834 in.

BREF = wing span = 15.45 in.

All data are presented along a set of body and stability axes (Figure 1) passing through the estimated forward center of gravity located at a full scale fuselage station of 1076.48 in. or 65% of the actual body length.

Elevon and aileron derivative data were computer-generated by the Chrysler DATAMAN-CADSAC Program and represent the local slope of the coefficient vs. control deflection at each value of angle of attack.

REFERENCE

DMS-DR-2184, "TRANSONIC CONTROL EFFECTIVENESS FOR FULL AND PARTIAL SPAN ELEVON CONFIGURATIONS ON A 0.0165 SCALE MODEL SPACE SHUTTLE ORBITER TESTED IN THE LaRC 8-FOOT TRANSONIC PRESSURE TUNNEL (LA48)."

TABLE I

TEST : LaRC UPWT 1101 (LA49) | DATE : 1-21-77

TEST CONDITIONS

MACH NUMBER	REYNOLDS NUMBER (per foot)	DYNAMIC PRESSURE (pounds sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
2.5	2.0×10^6	3.02	
4.63	2.0×10^6	1.63	

BALANCE UTILIZED: UT27-50

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	600 lb.	± 3.0 lb.	
SF	300 lb.	± 1.5 lb.	
AF	50 lb.	± 0.25 lb.	
PM	800 in-lb.	± 4.0 in-lb.	
RM	400 in-lb.	± 2.0 in-lb	
YM	600 in-lb.	± 3.0 in-lb	

COMMENTS:

TABLE II

TEST: UPWT 1101 (LA-49) — DATA SET RUN NUMBER COLLATION SUMMARY — DATE: 1-21-[illegible]

DATA SET IDENTIFIER	CONFIGURATION	SCHD. α	SCHD. β	ELEVON DEFLECTION LO	LI	RI	RO	δSB	δBF	NO. OF RUNS	MACH NUMBERS 2.5	4.63	TEST RUN NUMBERS
RHJ001	089B-139 Orb.	A	0	0	0	0	0	25	0		20	2	
002				0	-10	-10	0				21	3	
003				0	-20	-20	0				22	4	
004				0	-40	-40	0				23	5	
005				-10	-10	-10	-10				24	6	
006				-20	-20	-20	-20				25	7	
007				-40	-40	-40	-40				26	8	
008				-10	0	0	-10				27	9	
009				-20	0	0	-20				28	10	
010				-40	0	0	-40				29	11	
011				0	0	-20	-20				30	12	
012				-10	-10	-30	-30				31	13	
013				0	-10	-10	-20				32	14	
014				0	-20	-20	-40				33	15	
015				-10	-20	-20	-30				34	16	
016				+10	-20	-20	-10				35	17	
017				+10	-40	-40	-10				36	18	
018				-20	-30	-30	-40				37	19	

1 7 13 19 25 31 37 43 49 55 61 67 75 76

DELTA | CN | CA | CLM | CBL | CYN | CY | CLL | CLD | L/D

α or β SCHEDULES

A) -4° to 32° at M = 2.5
-4° to 40° at M = 4.63

COEFFICIENTS

IDVAR (1) IDVAR (2) NDV

TABLE III
MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY - B20

GENERAL DESCRIPTION : 089B-139B (MODIFIED NOSE), NOSE SECTION FROM FULL-SCALE STATION 238, 0 TO STATION 500 FROM NAR DRAWING VL70-0001393. REMAINING BODY AFT OF STATION 500 FROM NAR VL70-000093.

MODEL SCALE 0.0165

DRAWING NUMBER : VL70-000093, VL70-0001398

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length	1290.3 IN.	21.290 IN.
Max Width	268.0	4.372 IN.
Max Depth	248.0	4.092 IN.
Fineness Ratio	4.869	4.869 IN.
Area	456.4000 SQ.FT.	17.8987 SQ.FT.
Max. Cross-Sectional		
Planform		
Wetted		
Base		

TABLE III (Continued)
MODEL DIMENSIONAL DATA

MODEL COMPONENT : BODY FLAP-F_4

GENERAL DESCRIPTION : 089B-139

MODEL SCALE: 0.0165

DRAWING NUMBER : VLTO-000094A

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length	84.700	1.398
Max Width	265.000	4.372
Max Depth	21.000	.346
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform	142.6400	5.5921
Wetted		
Base	38.0460	1.5151

TABLE III (Continued)
MODEL DIMENSIONAL DATA

MODEL COMPONENT : OMS PODS - M[14]

GENERAL DESCRIPTION 039B-139

MODEL SCALE: 0.0165

DRAWING NUMBER : V070-000094

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length	346.000	5.709
Max Width	108.000	1.782
Max Depth	113.800	1.878
Fineness Ratio		
Area		
Max. Cross-Sectional		
Planform		
Wetted		
Base		
OMS POD CENTERLINE		
Z Axis Orbiter	463.200	7.645
Y Axis Orbiter	80.000	1.320

TABLE III (Continued)
MODEL DIMENSIONAL DATA

COMPONENT SLOTTED ELEVON (6-inch GAP) - B43

GENERAL DESCRIPTION: Configuration 140A/B Orbiter elevon.

NOTE: B43 is a slotted version of B26. Data are for one side.

MODEL SCALE: 0.0165 MODEL DRAWING: MS-A0014P

DRAWING NUMBER

DIMENSIONS	FULL SCALE	MODEL SCALE
Area - Ft^2	210.0	0.0572
Span (equivalent) - In.	340.2	5.762
Inb'd equivalent chord - In.	119.004	1.947
Outb'd equivalent chord/ total surface chord	65.1%	0.910
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	0.2006	0.2306
At Outb'd equiv. chord	0.4004	0.4404
Sweep Back Angles, degrees		
Leading Edge	0.00	0.00
Trailing Edge	-10.056	-10.056
Hingeline	0.00	0.00
Area Moment (Normal to hinge line)	1587.0	0.00713
Mean Aerodynamic Chord ($\bar{c}$), in.	21.[illegible]	1.40[illegible]

TABLE III (Continued)
MODEL DIMENSIONAL DATA

MODEL COMPONENT [redacted] - B5

GENERAL DESCRIPTION CONFIGURATION FOR LINES VL70-000005.

MODEL SCALE: 0.015

DRAWING NUMBER VL70-000005

DIMENSIONS	FULL SCALE	MODEL SCALE
Area	106.380 SQ.FT.	.0290 SQ.FT.
Span (equivalent)	201.00 IN.	3.30 IN.
Inb'd equivalent chord	91.585 IN.	1.51 IN.
Outb'd equivalent chord	50.833 IN.	.84 IN.
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	.400	.400
At Outb'd equiv. chord	.400	.400
Sweep Back Angles, degrees		
Leading Edge	34.03	34.03 DEG.
Trailing Edge	26.05	26.05 DEG.
Hingeline	34.03	34.03 DEG.
Area Moment (Normal to hinge line)	556.1050 [illegible] IN.	4.0830 CU.IN.

TABLE III (Continued)

MODEL DIMENSIONAL DATA

MODEL COMPONENT VERTICAL TAIL - V_5

GENERAL DESCRIPTION CENTERLINE VERTICAL TAIL DOUBLE WEDGE AIRFOIL WITH ROUNDED LEADING EDGE.

MODEL SCALE: 0.0165

DRAWING NUMBER VL70-000025

DIMENSIONS	FULL SCALE	MODEL SCALE
Area	413.2500 SQ.FT.	16.2011 SQ.IN.
Span (equivalent)	315.72	5.21 IN.
Inb'd equivalent chord	268.50 IN.	4.43 IN.
Outb'd equivalent chord	108.47 IN.	1.79 IN.
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord		
At Outb'd equiv. chord		
Sweep Back Angles, degrees		
Leading Edge	45.00 DEG.	45.00 DEG.
Trailing Edge	26.249 DEG.	26.25 DEG.
Hingeline		
Area Moment (Normal to hinge line)		

TABLE III (Concl'd)

MODEL COMPONENT: [illegible]

GENERAL DESCRIPTION: [illegible]

DRAWING NUMBER: VL70-000003

DIMENSIONS:	FULL-SCALE	MODEL SCALE
TOTAL DATA		
Area		
Planform	[illegible]	[illegible]
Wetted		
Span (equivalent)	[illegible]	[illegible]
Aspect Ratio	[illegible]	[illegible]
Rate of Taper	[illegible]	[illegible]
Taper Ratio	[illegible]	[illegible]
Dihedral Angle, degrees	[illegible]	[illegible]
Incidence Angle, degrees	[illegible]	[illegible]
Aerodynamic Twist, degrees	[illegible]	[illegible]
Toe-In Angle		
Cant Angle		
Sweep Back Angles, degrees		
Leading Edge	[illegible]	[illegible]
Trailing Edge	[illegible]	[illegible]
0.25 Element Line	[illegible]	[illegible]
Chords:		
Root (Wing Sta. 0.0)	[illegible]	[illegible]
Tip, (equivalent)	[illegible]	[illegible]
MAC	[illegible]	[illegible]
Fus. Sta. of .25 MAC	[illegible]	[illegible]
W.P. of .25 MAC	[illegible]	[illegible]
B.L. of .25 MAC		
Airfoil Section		
Root		
Tip		
EXPOSED DATA		
Area	[illegible]	[illegible]
Span, (equivalent)	[illegible]	[illegible]
Aspect Ratio	[illegible]	[illegible]
Taper Ratio	[illegible]	[illegible]
Chords		
Root	[illegible]	[illegible]
Tip	[illegible]	[illegible]
MAC	[illegible]	[illegible]
Fus. Sta. of .25 MAC	[illegible]	[illegible]
W.P. of .25 MAC	[illegible]	[illegible]
B.L. of .25 MAC	[illegible]	[illegible]

Notes:

1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrows
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity

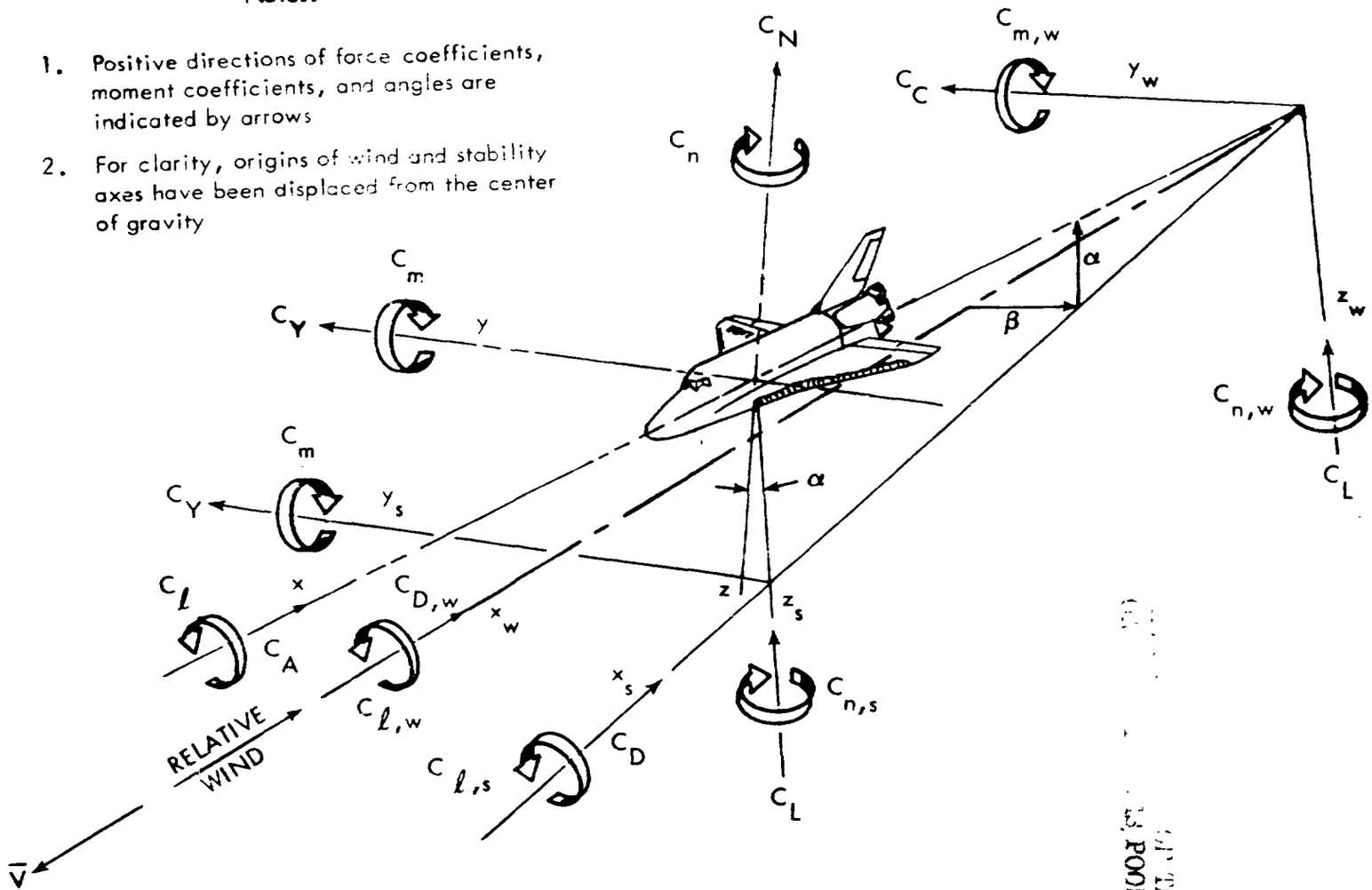
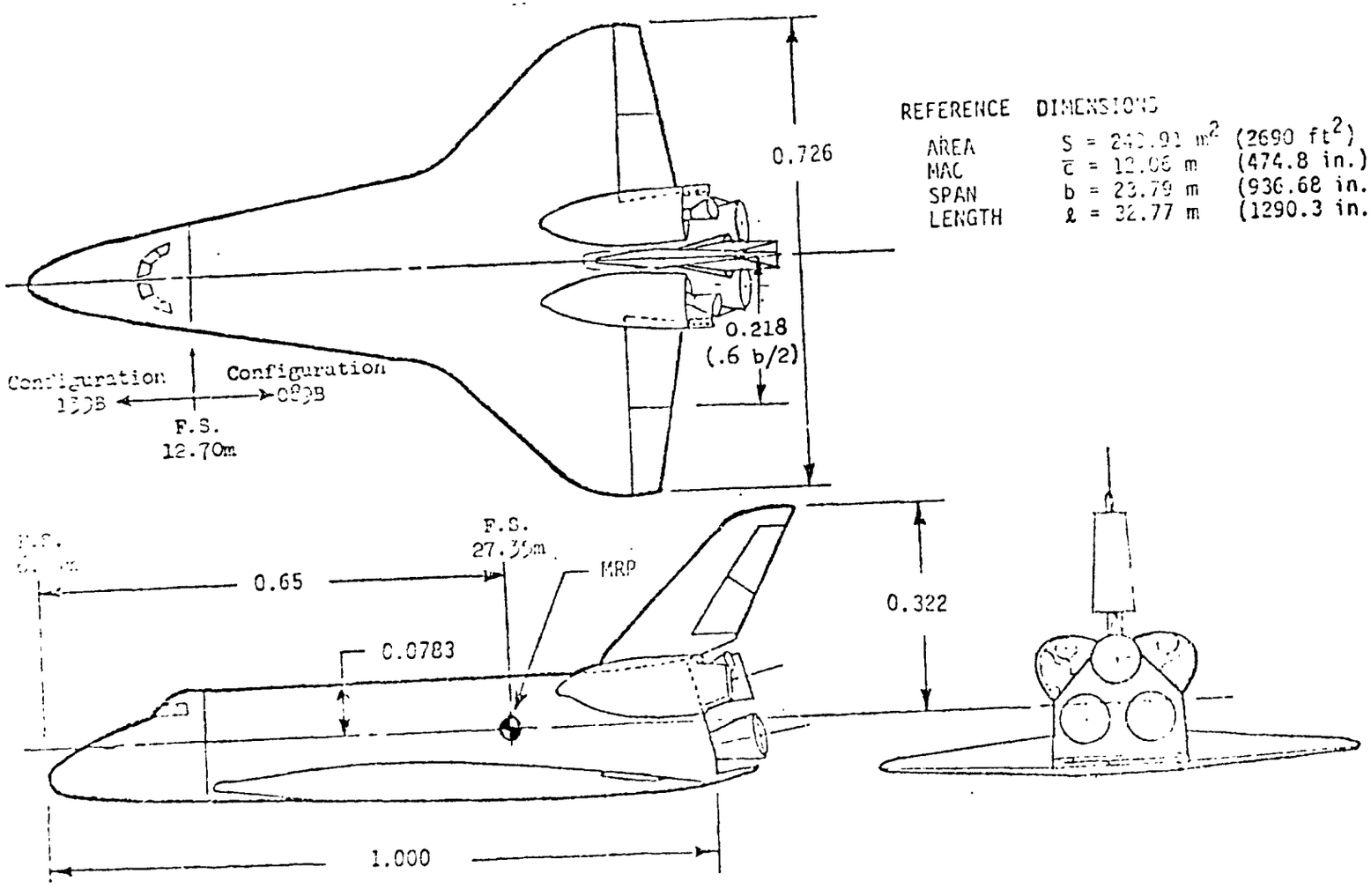
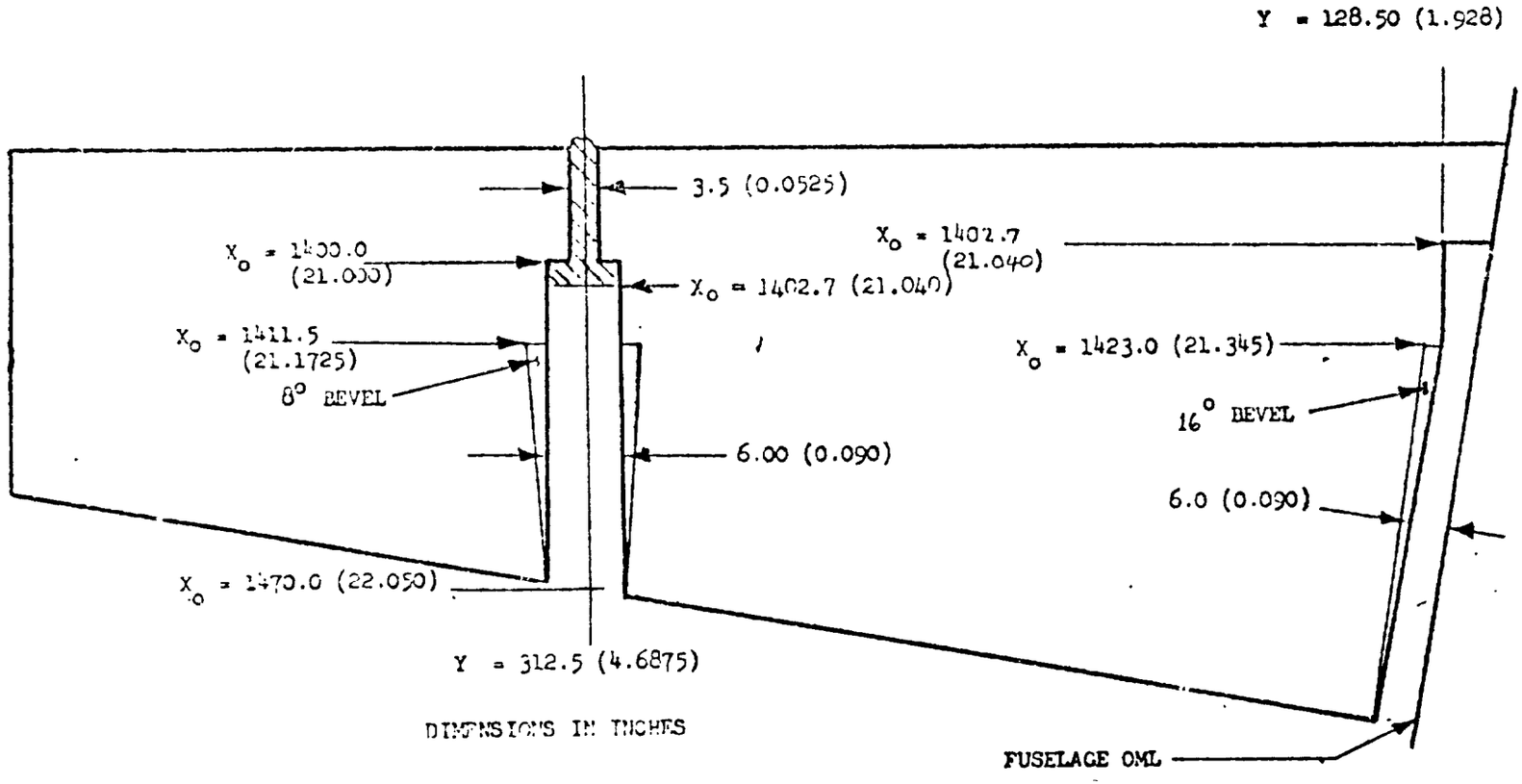


Figure 1. - Axis Systems



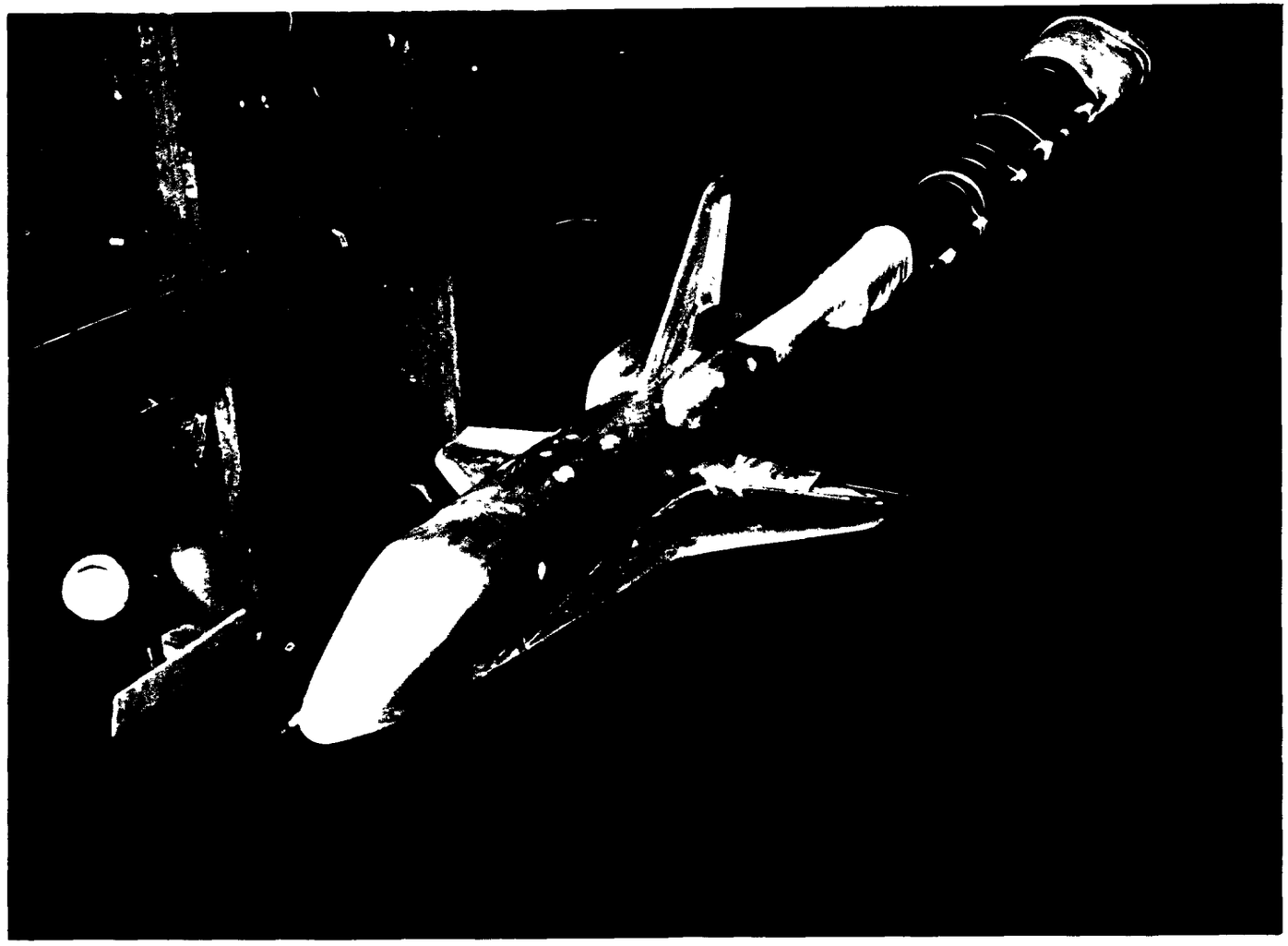
a. SSV Orbiter Configuration

Figure 2. - Model Sketches



b. Slotted Elevon E_{43} (6-inch gap)

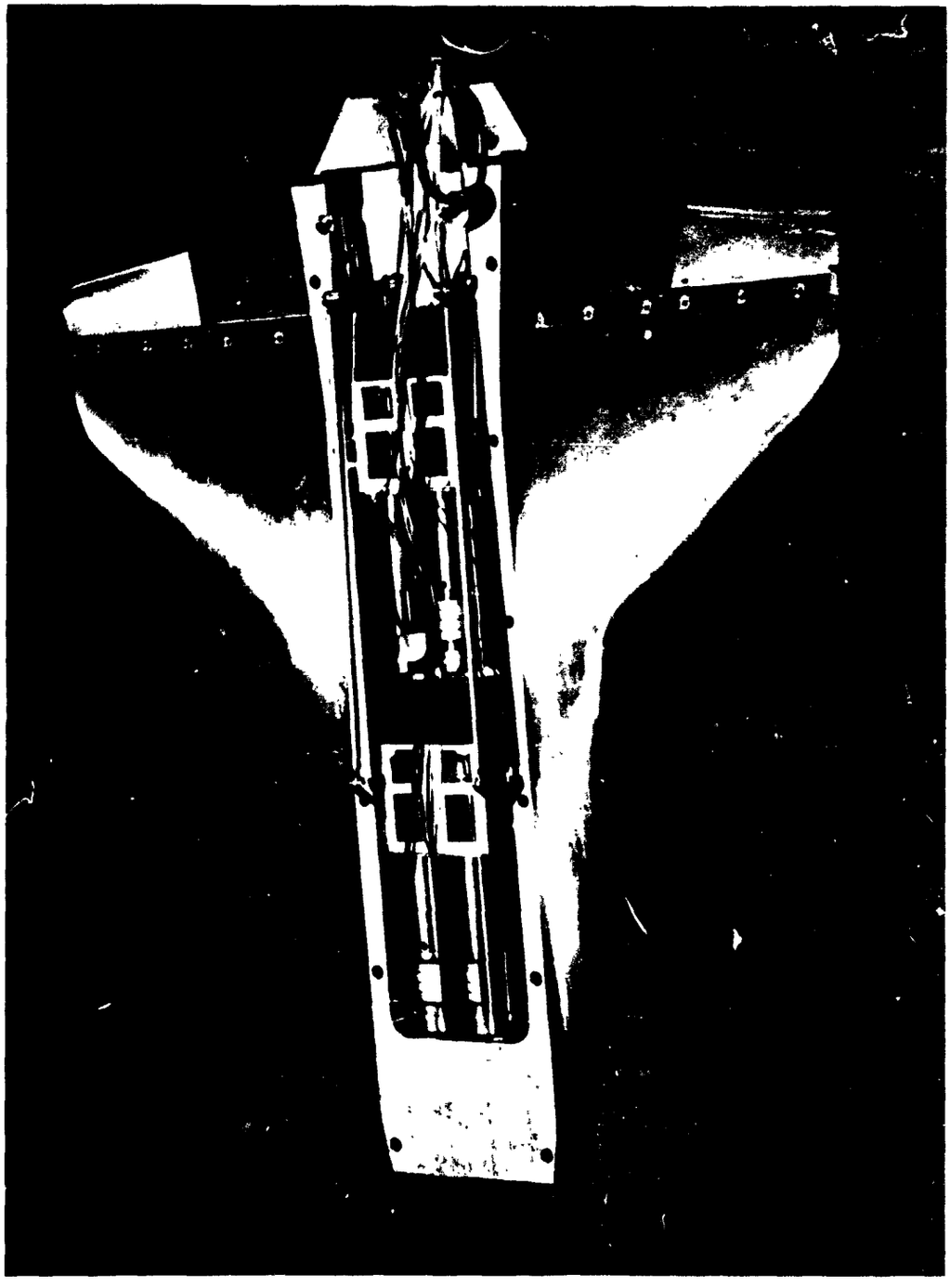
Figure 2. - Concluded.



a. Orbiter Configuration, Front, 3/4 View

Figure 3. - Model Photographs

b. Orbiter Configuration, Rear, 3/4 View
Figure 3. - Continued



c. View of Elevon Drive Motors
Figure 3. - Concluded

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DATA FIGURES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[redacted]	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000
[redacted]	◇	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-10.000	-10.000	-10.000	-10.000
[redacted]	⊠	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	-20.000	-20.000	-20.000
[redacted]	△	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	-40.000	-40.000	-40.000

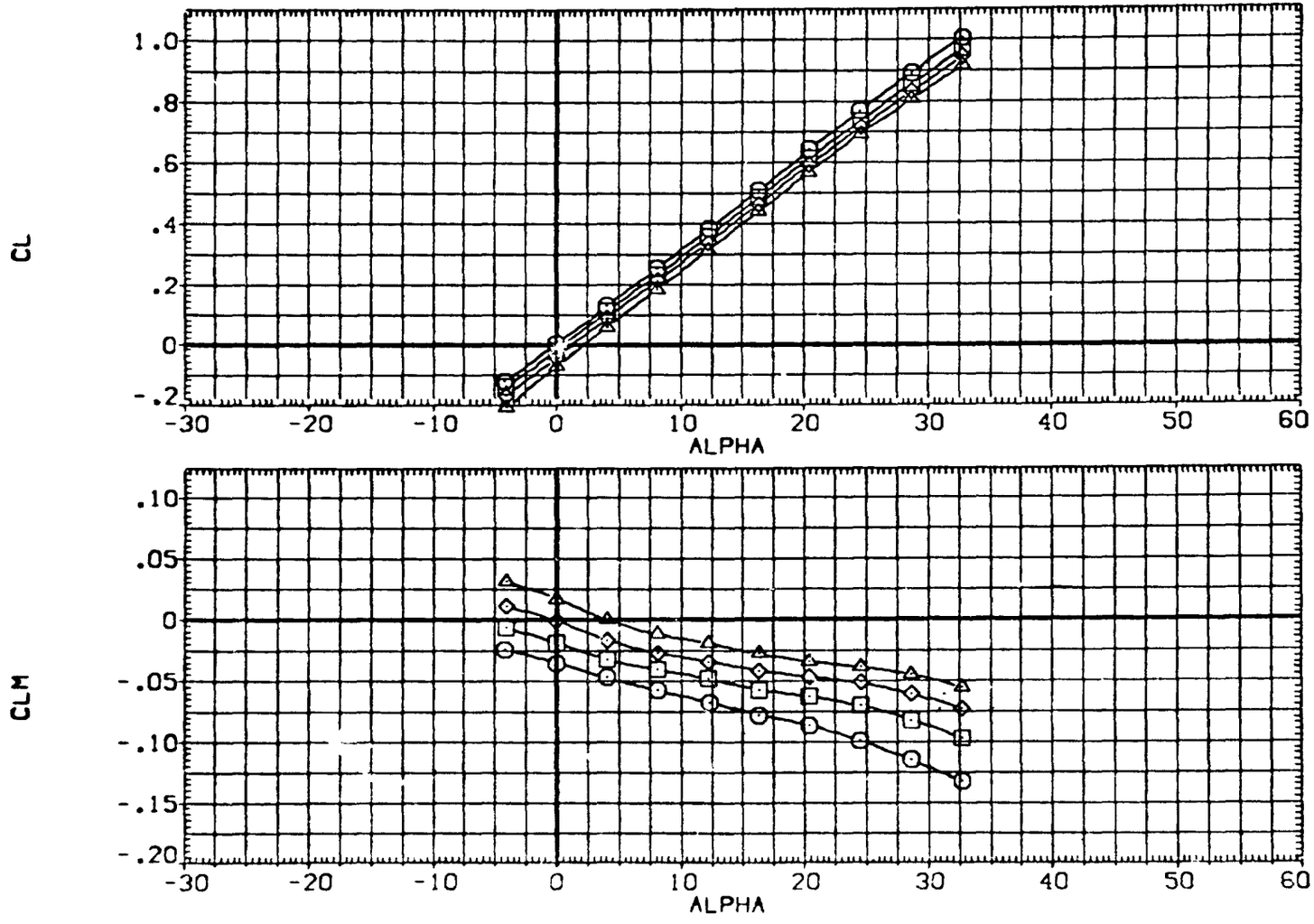


FIGURE 4. FULL SPAN ELEVON PITCH CHARACTERISTICS

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[illegible]	□	LA-49 SPVT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000
[illegible]	⊠	LA-49 SPVT 1101 RI-0898/139 ORB SPLIT ELEVON	-10.000	-10.000	-10.000	-10.000
[illegible]	⊠	LA-49 SPVT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	-20.000	-20.000	-20.000
[illegible]	△	LA-49 SPVT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	-40.000	-40.000	-40.000

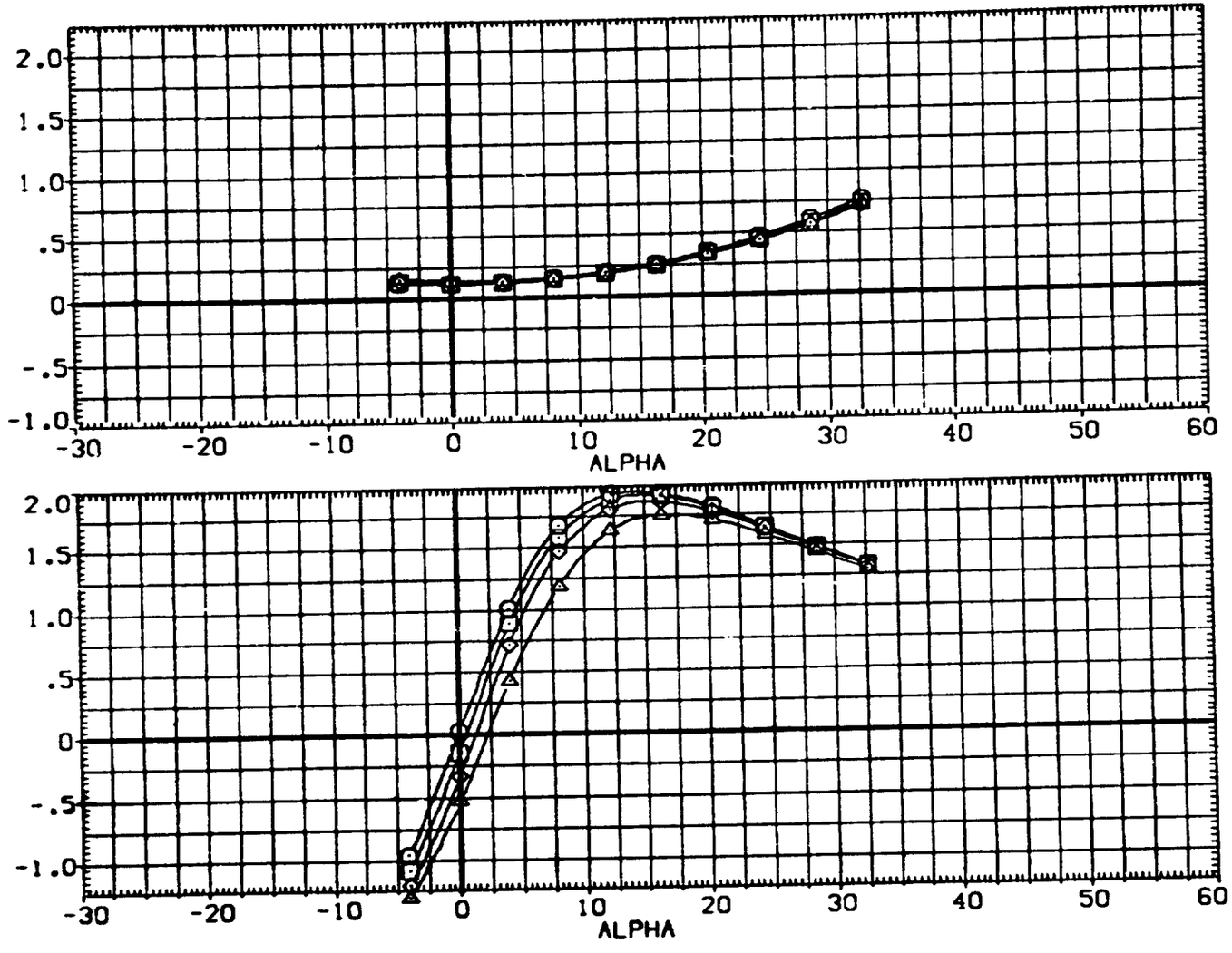


FIGURE 4. FULL SPAN ELEVON PITCH CHARACTERISTICS

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[illegible]	□	LA-49 SPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000
[illegible]	○	LA-49 SPWT 1101 RI-0899/139 ORB SPLIT ELEVON	-10.000	-10.000	-10.000	-10.000
[illegible]	⊠	LA-49 SPWT 1101 RI-0893/139 ORB SPLIT ELEVON	-20.000	-20.000	-20.000	-20.000
[illegible]	△	LA-49 SPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	-40.000	-40.000	-40.000

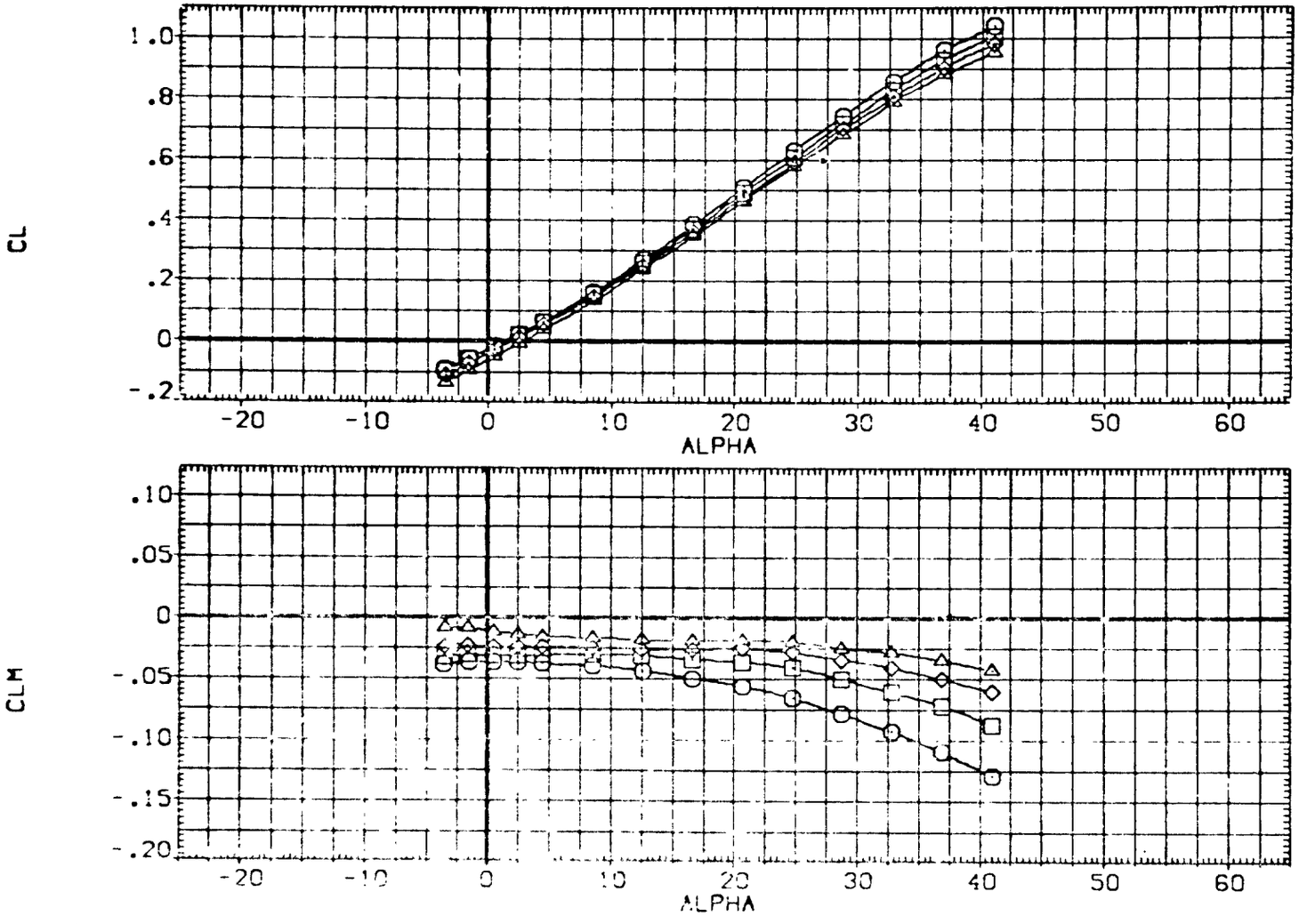


FIGURE 4. FULL SPAN ELEVON PITCH CHARACTERISTICS

(B)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(RVJ001)	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000
(RVJ005)	◇	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-10.000	-10.000	-10.000	-10.000
(RVJ006)	⊠	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	-20.000	-20.000	-20.000
(RVJ007)	△	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	-40.000	-40.000	-40.000

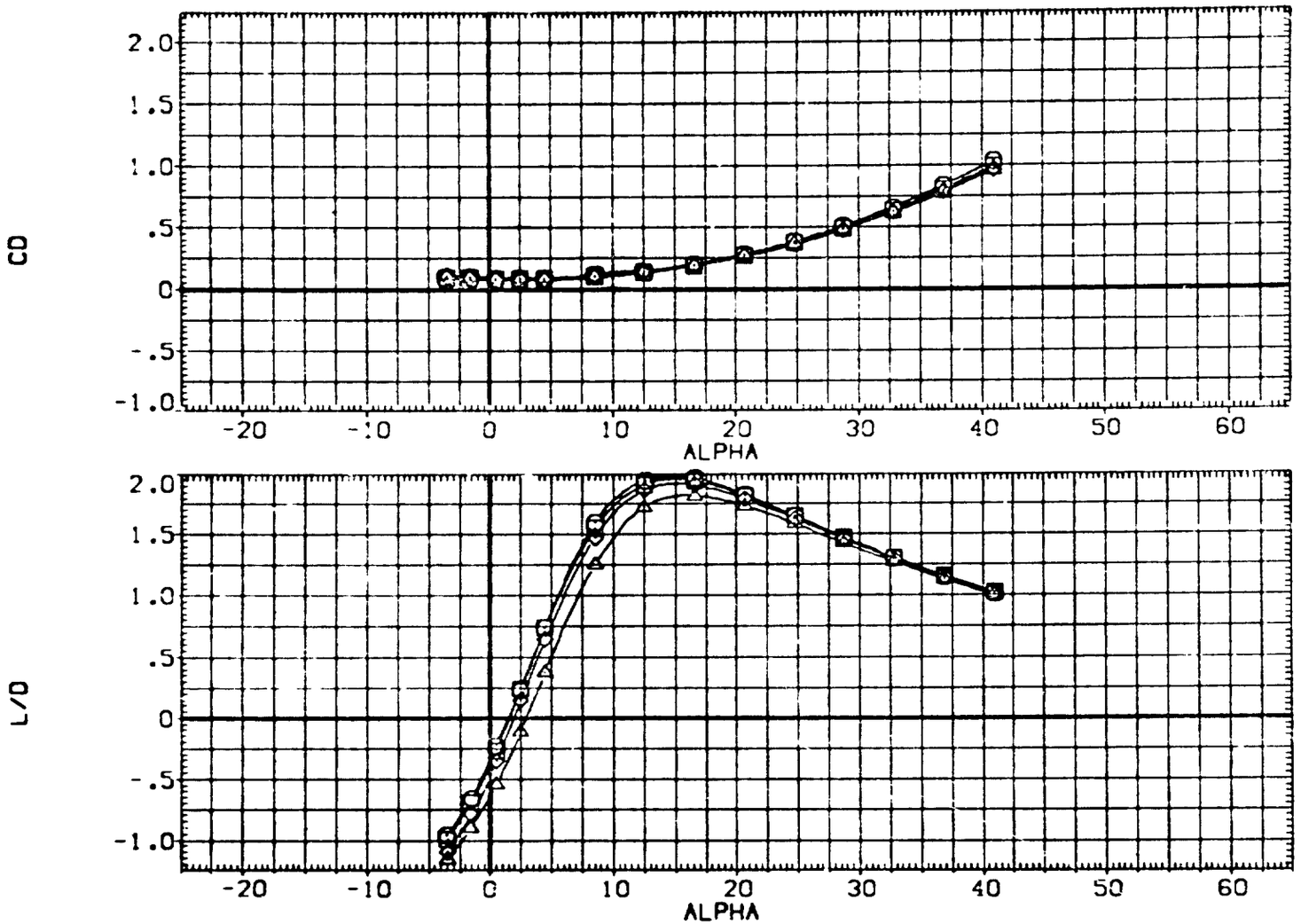


FIGURE 4. FULL SPAN ELEVON PITCH CHARACTERISTICS

(B)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[illegible]		LA-49 [illegible] 1101 RI-0098/139 ORB SPLIT ELEVON	.000	-40.000	-40.000	.000
[illegible]		LA-49 [illegible] 1101 RI-0098/139 ORB SPLIT ELEVON	.000	-20.000	-20.000	.000
[illegible]		LA-49 [illegible] 1101 RI-0098/139 ORB SPLIT ELEVON	.000	-10.000	-10.000	.000
[illegible]		LA-49 [illegible] 1101 RI-0098/139 ORB SPLIT ELEVON	.000	.000	.000	.000

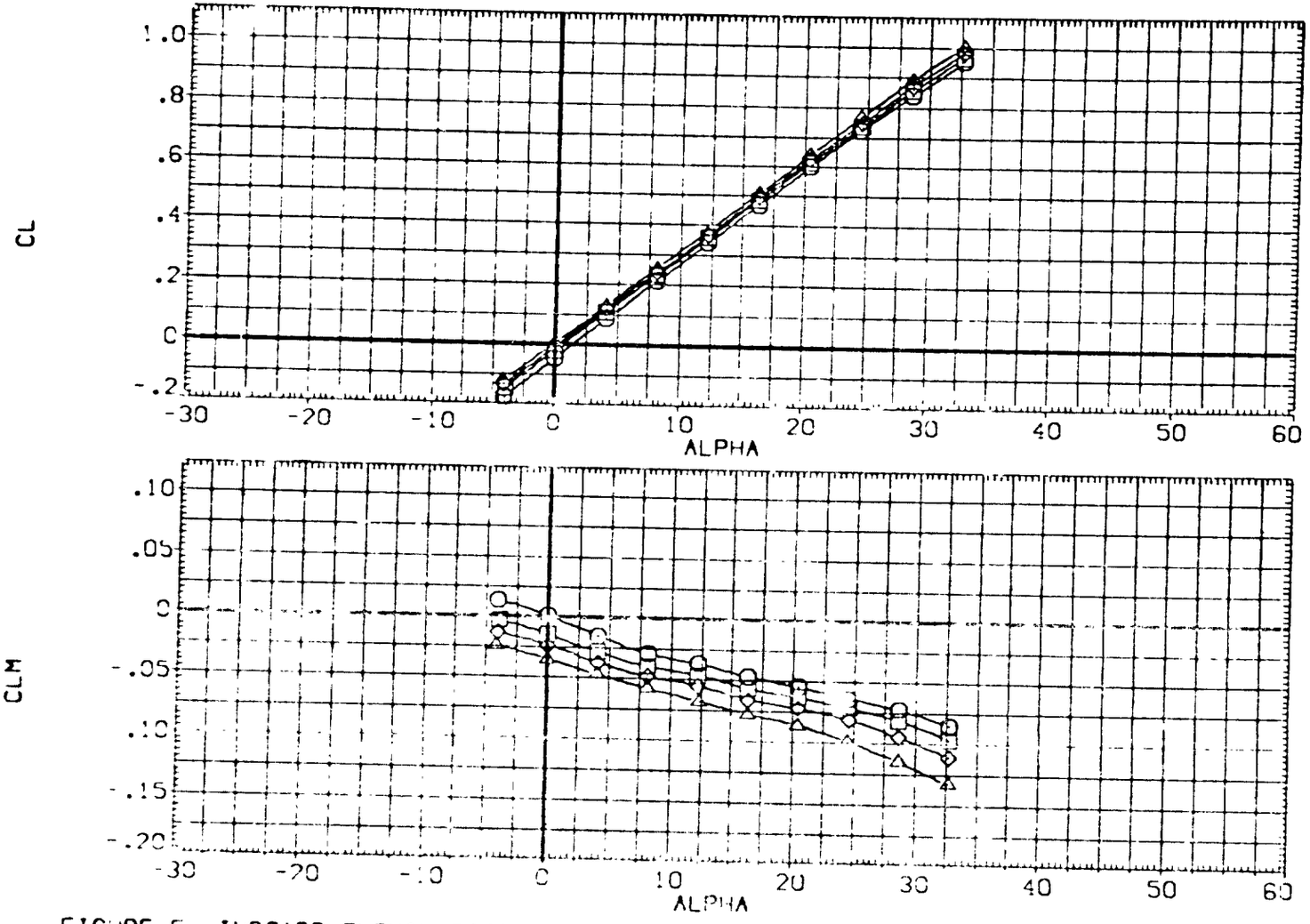


FIGURE 5. INBOARD ELEVON PITCH CHARACTERISTICS

(A) MACH - 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[illegible]		LA-49 SPWT 1101 RI-0898/139 098 SPLIT ELEVON	.000	-40.000	-40.000	.000
[illegible]		LA-49 SPWT 1101 RI-0898/139 098 SPLIT ELEVON	.000	-20.000	-20.000	.000
[illegible]		LA-49 SPWT 1101 RI-0898/139 098 SPLIT ELEVON	.000	-10.000	-10.000	.000
[illegible]		LA-49 SPWT 1101 RI-0898/139 098 SPLIT ELEVON	.000	.000	.000	.000

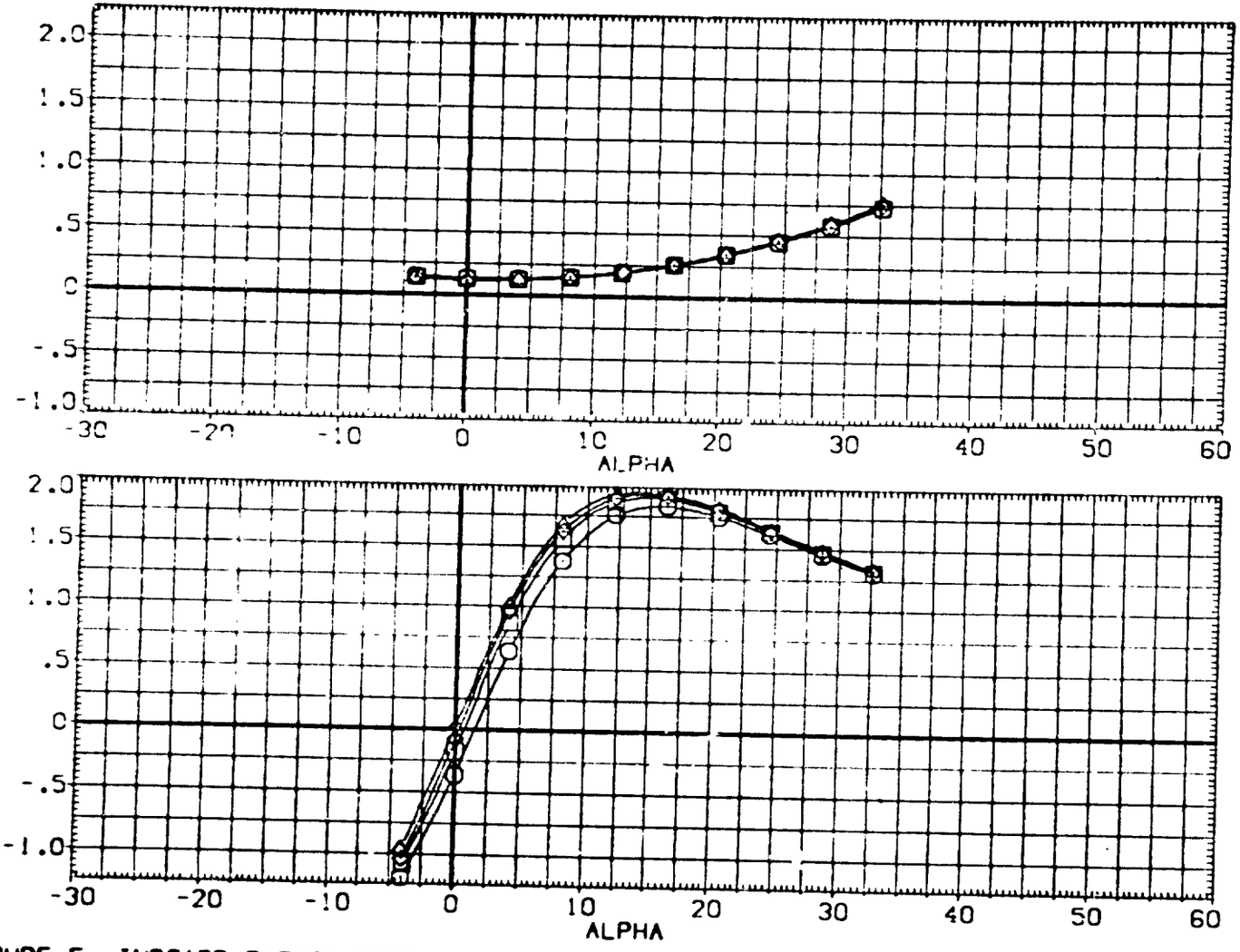


FIGURE 5. INBOARD ELEVON PITCH CHARACTERISTICS

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[illegible]	□	LA-49 PWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	-40.000	-40.000	.000
[illegible]	◇	LA-49 PWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	-20.000	-20.000	.000
[illegible]	△	LA-49 PWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	-10.000	-10.000	.000
[illegible]	○	LA-49 PWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000

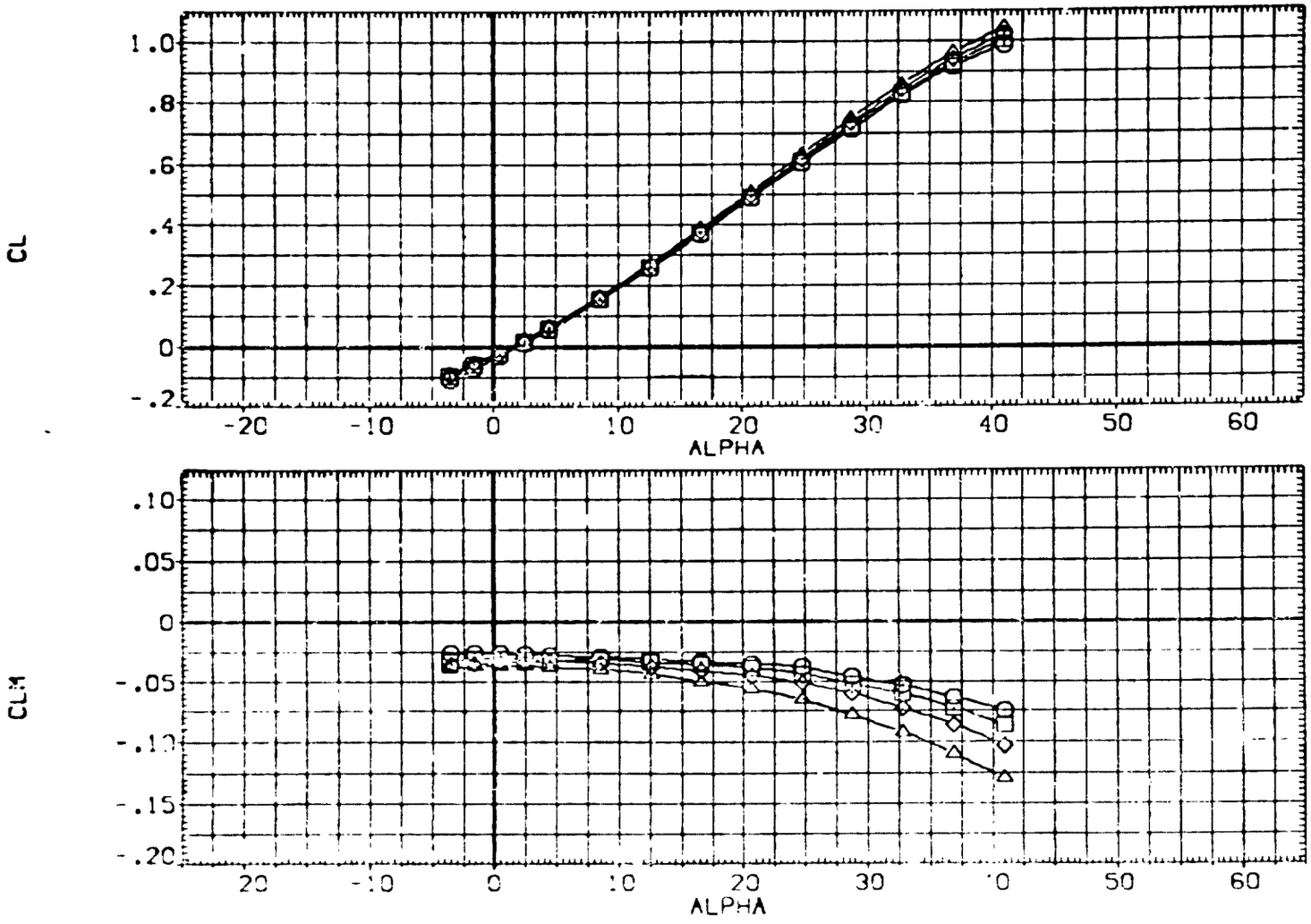


FIGURE 5. INBOARD ELEVON PITCH CHARACTERISTICS

(B)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(RUN004)	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	-40.000	-40.000	.000
(RUN003)	⊠	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	-20.000	-20.000	.000
(RUN002)	⊗	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	-10.000	-10.000	.000
(RUN001)	△	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000

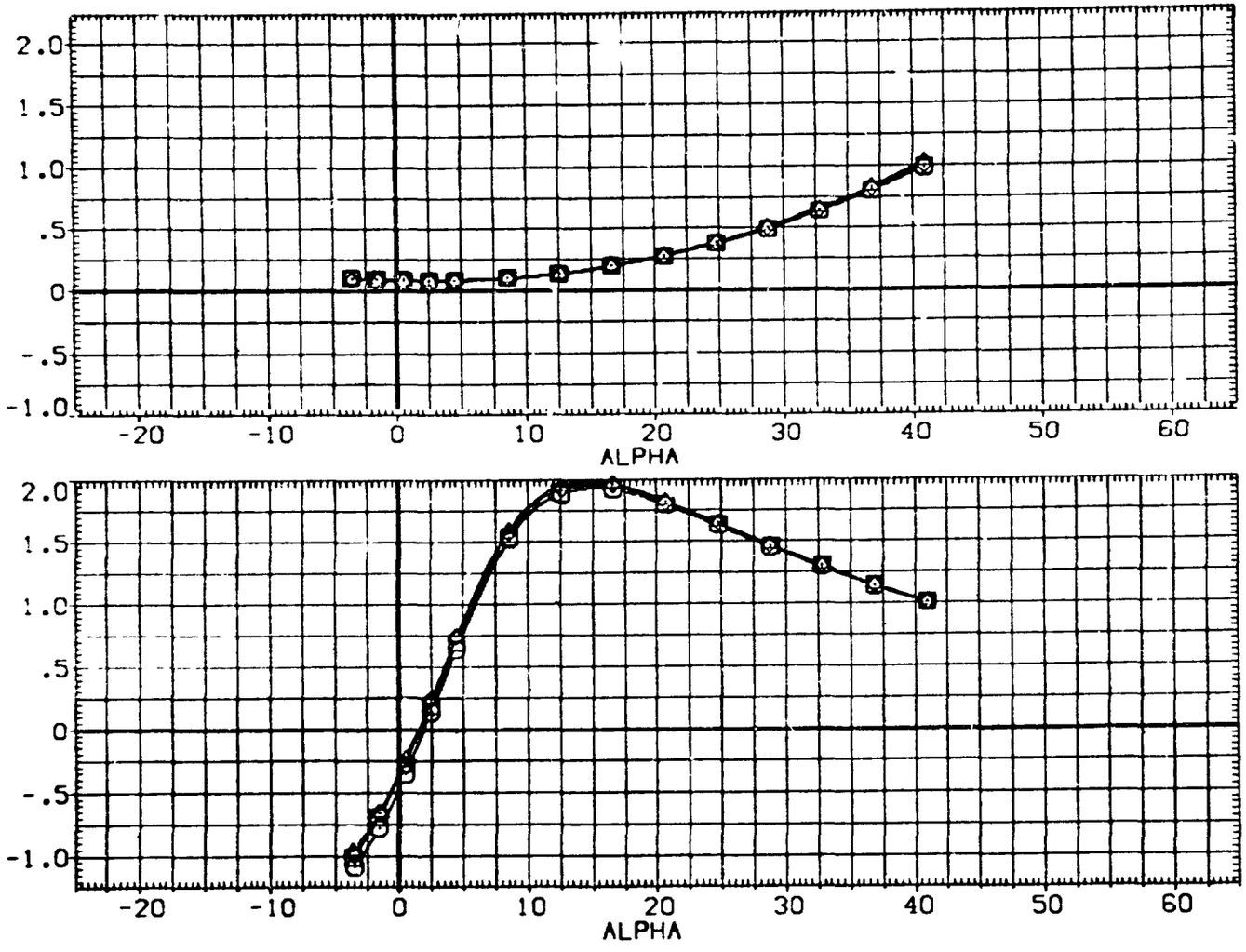


FIGURE 5. INBOARD ELEVON PITCH CHARACTERISTICS

(B)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(RUN001)	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000
(RUN008)	◇	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-10.000	.000	.000	-10.000
(RUN009)	△	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	.000	.000	-20.000
(RUN010)	⋈	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	.000	.000	-40.000

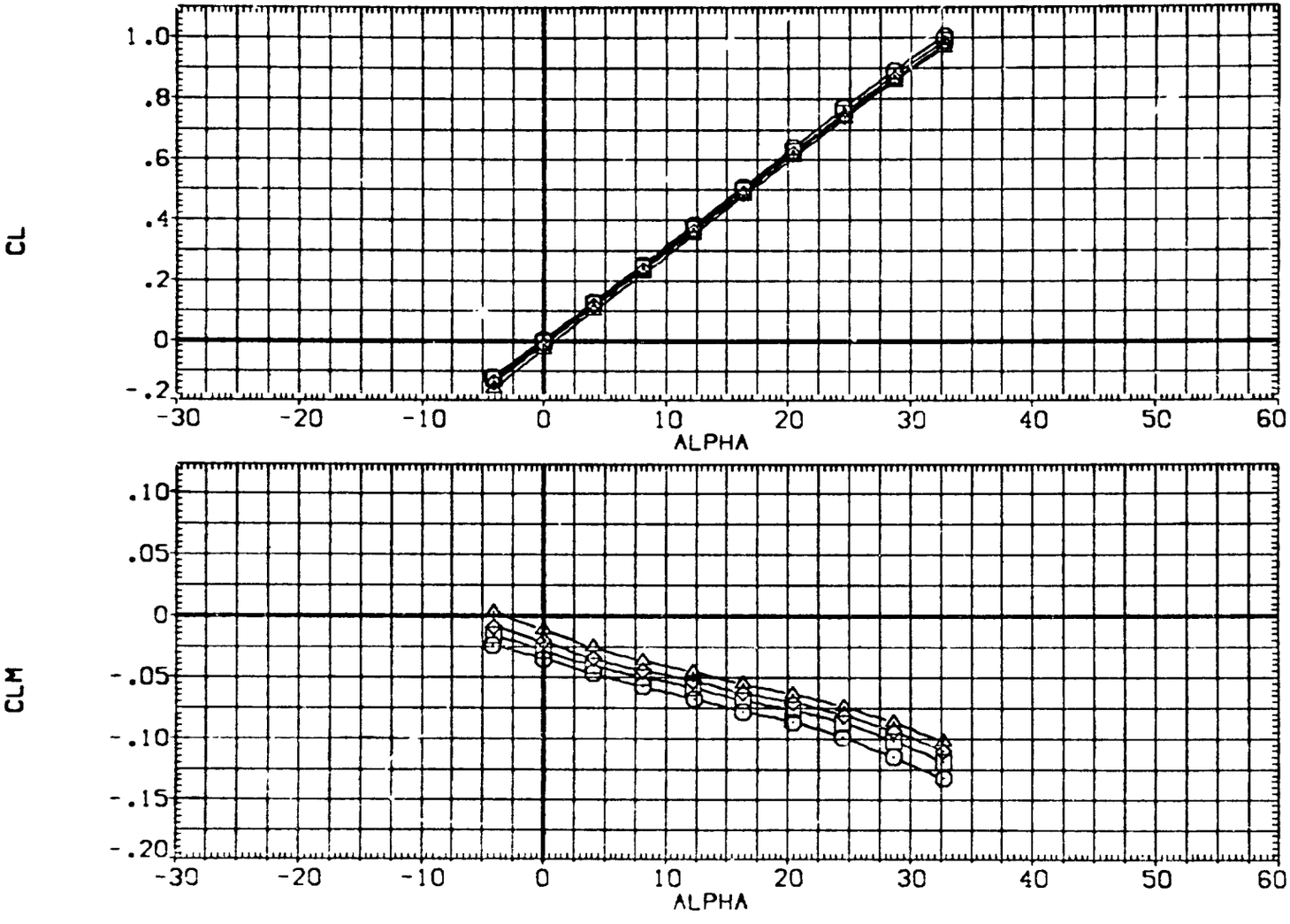


FIGURE 6. OUTBOARD ELEVON PITCH CHARACTERISTICS

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(A)001	□	LA-49 LPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000
(A)008	⊠	LA-49 LPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-10.000	.000	.000	-10.000
(A)009	⊠	LA-49 LPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	.000	.000	-20.000
(A)010	△	LA-49 LPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	.000	.000	-40.000

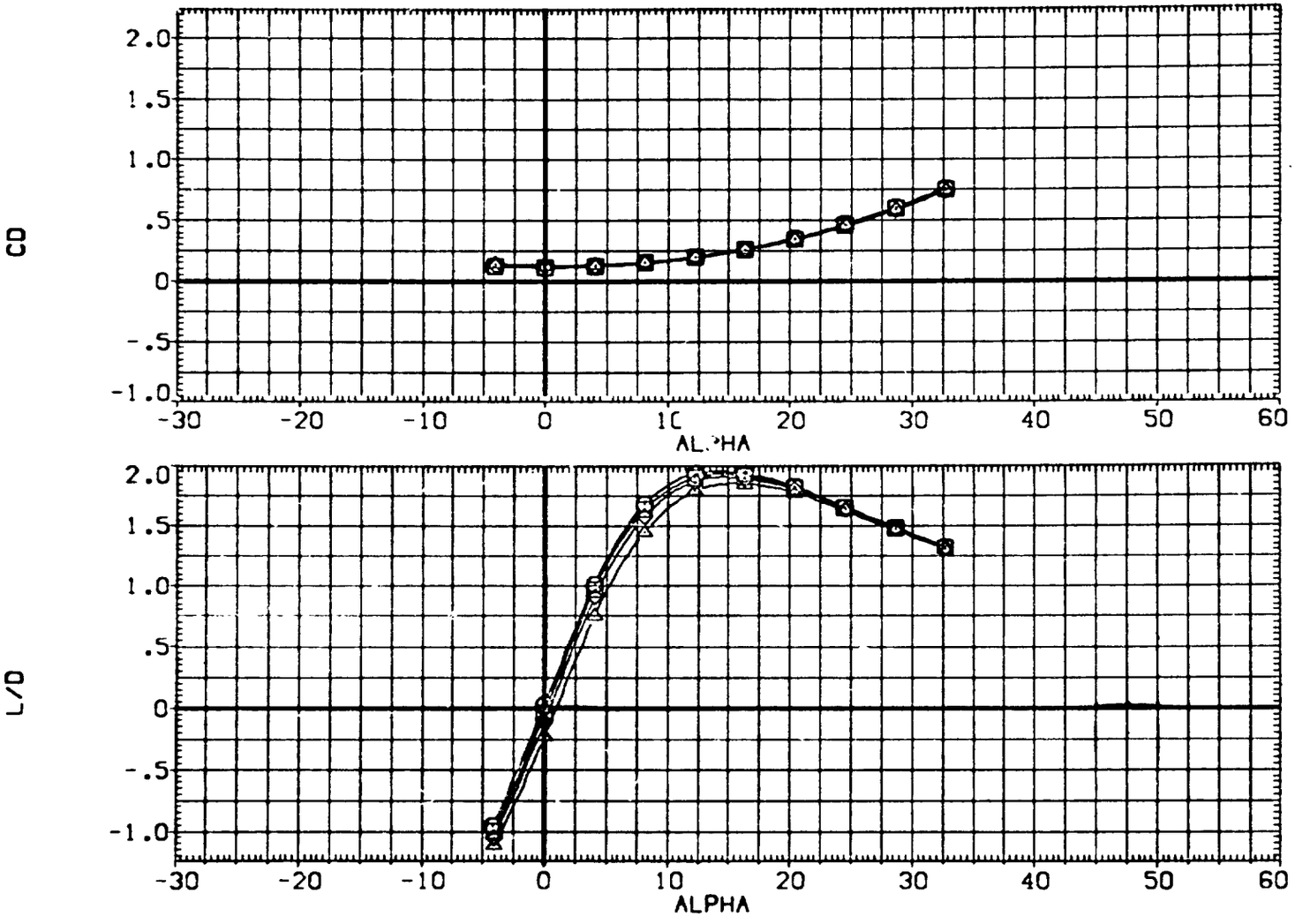


FIGURE 6. OUTBOARD ELEVON PITCH CHARACTERISTICS

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(RJ001)	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000
(RJ008)	◇	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-10.000	.000	.000	-10.000
(RJ009)	⊠	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	.000	.000	-20.000
(RJ010)	△	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	.000	.000	-40.000

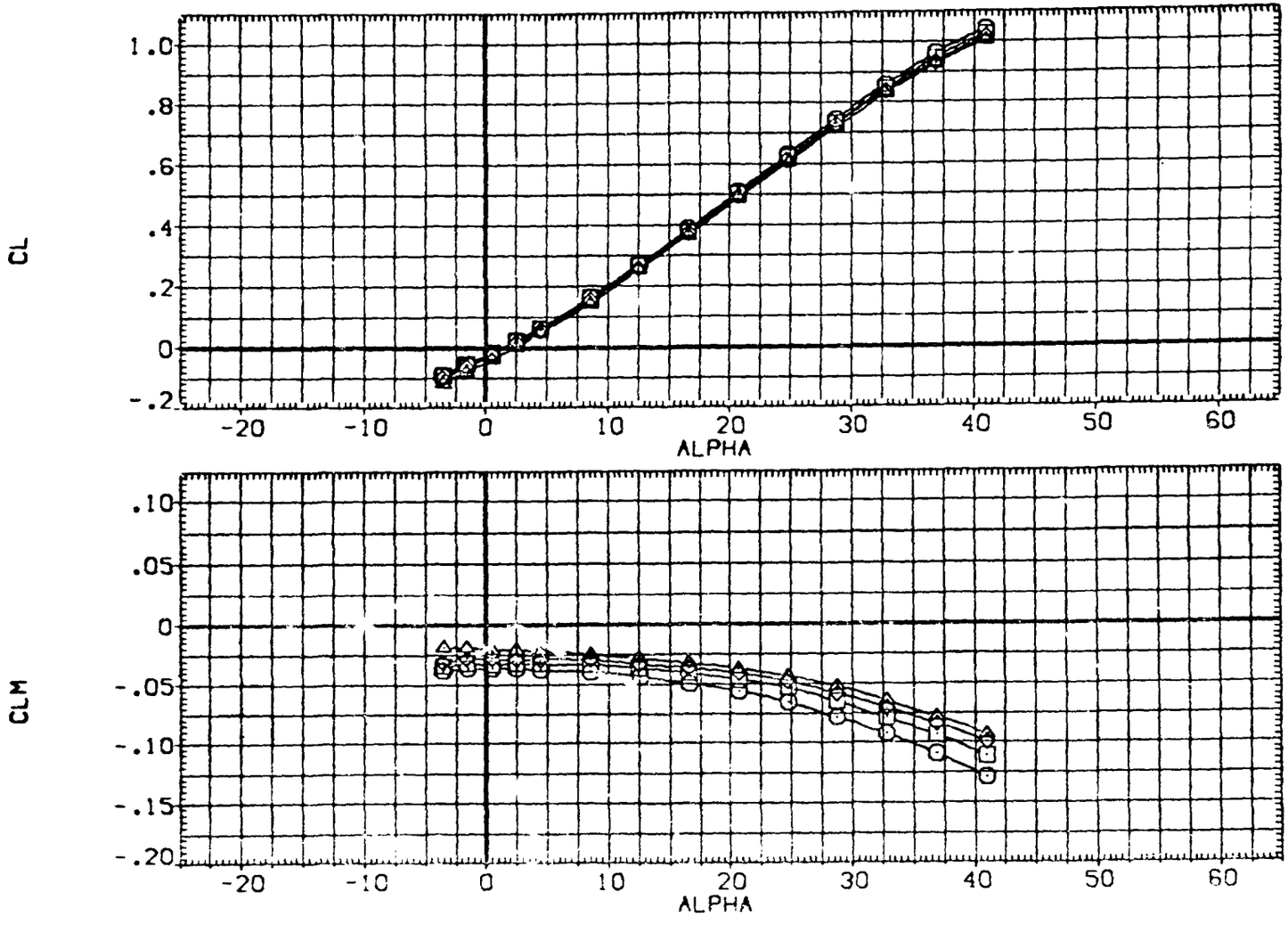


FIGURE 6. OUTBOARD ELEVON PITCH CHARACTERISTICS

(B)MACH = 4.60

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(R)001)	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	.000	.000
(R)008)	⊠	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-10.000	.000	.000	-10.000
(R)009)	⊠	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	.000	.000	-20.000
(R)010)	△	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	.000	.000	-40.000

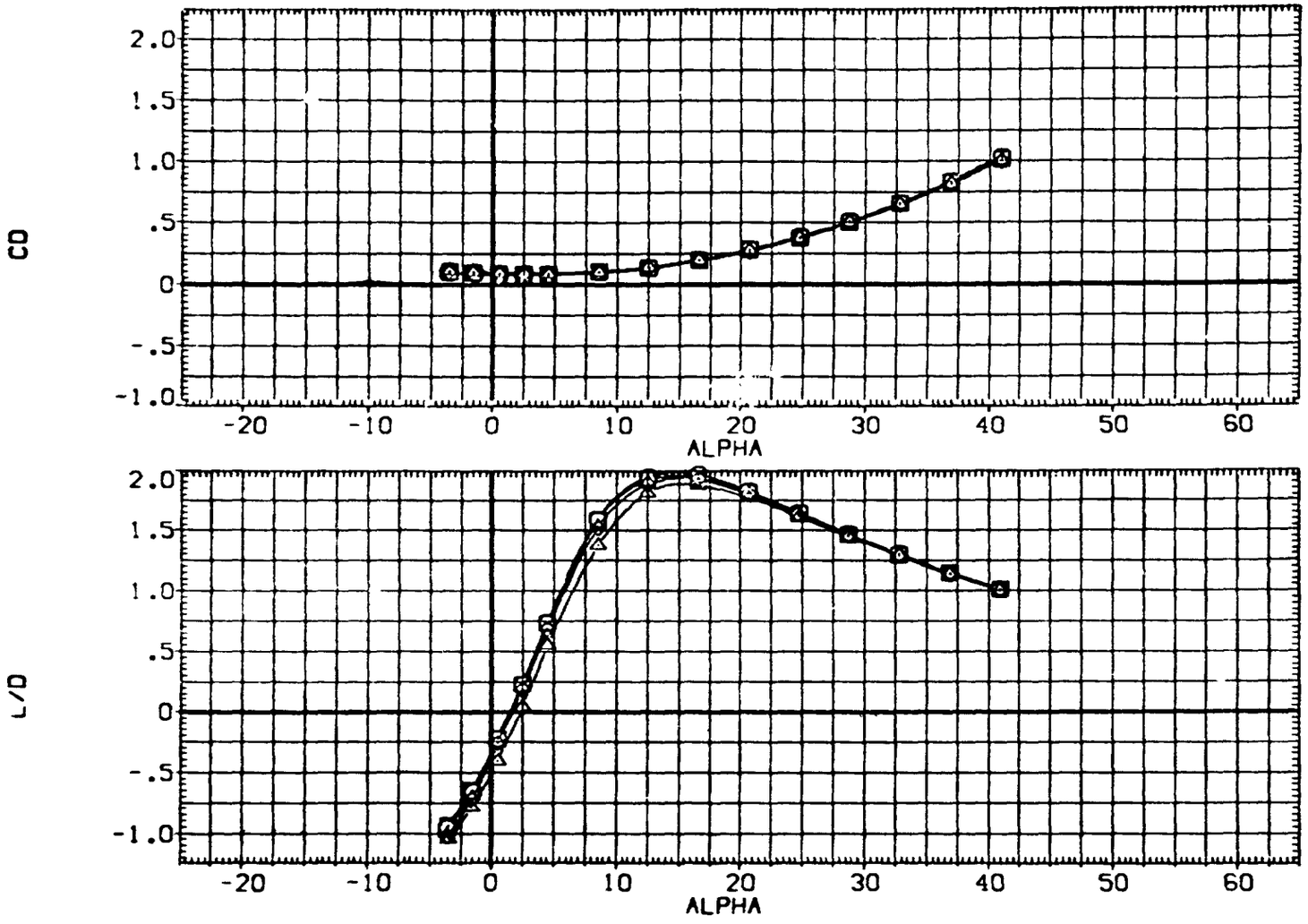


FIGURE 6. OUTBOARD ELEVON PITCH CHARACTERISTICS

(B)MACH = 4.60

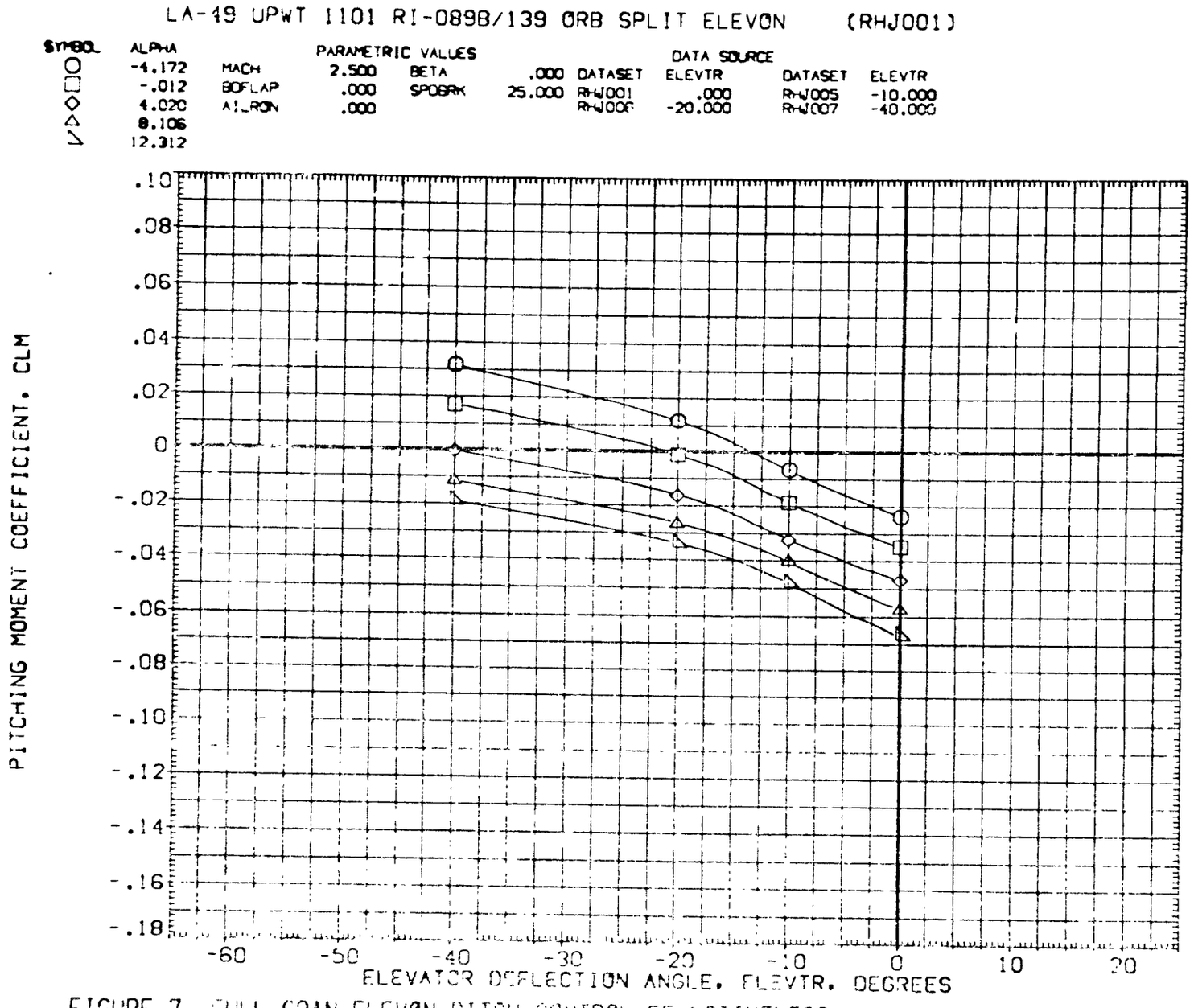


FIGURE 7. FULL SPAN ELEVON PITCH CONTROL EFFECTIVENESS

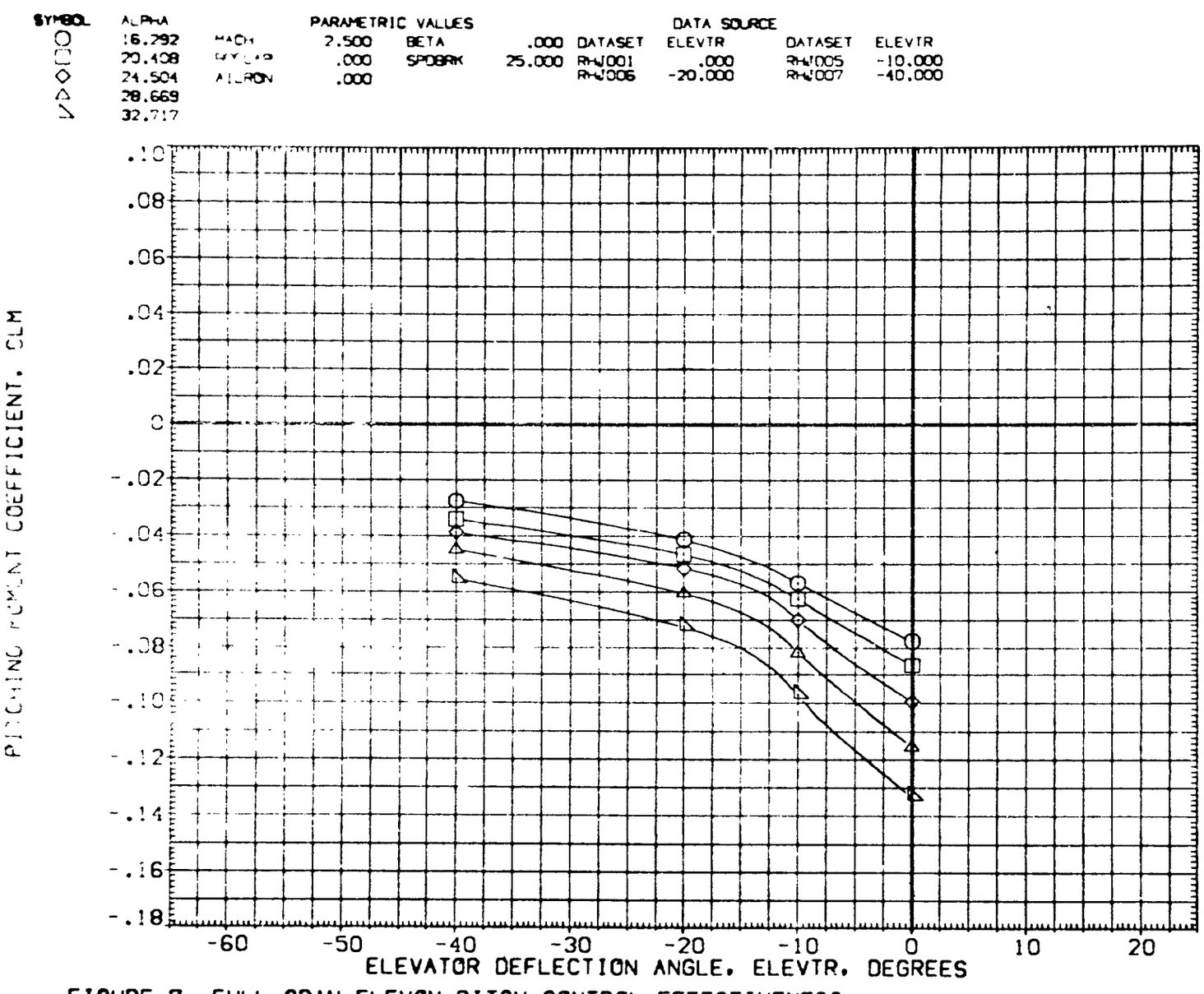


FIGURE 7. FULL SPAN ELEVON PITCH CONTROL EFFECTIVENESS

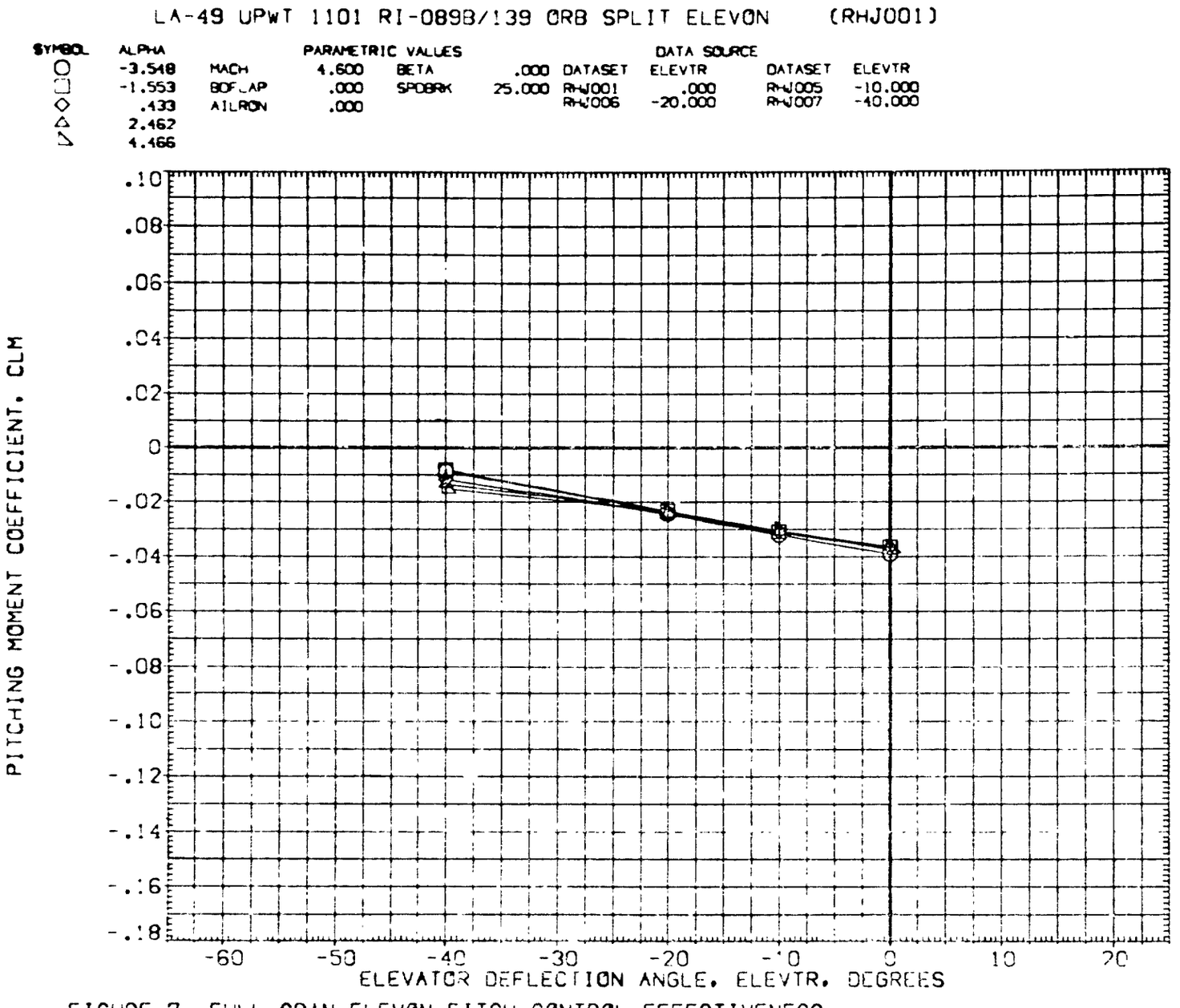


FIGURE 7. FULL SPAN ELEVON PITCH CONTROL EFFECTIVENESS

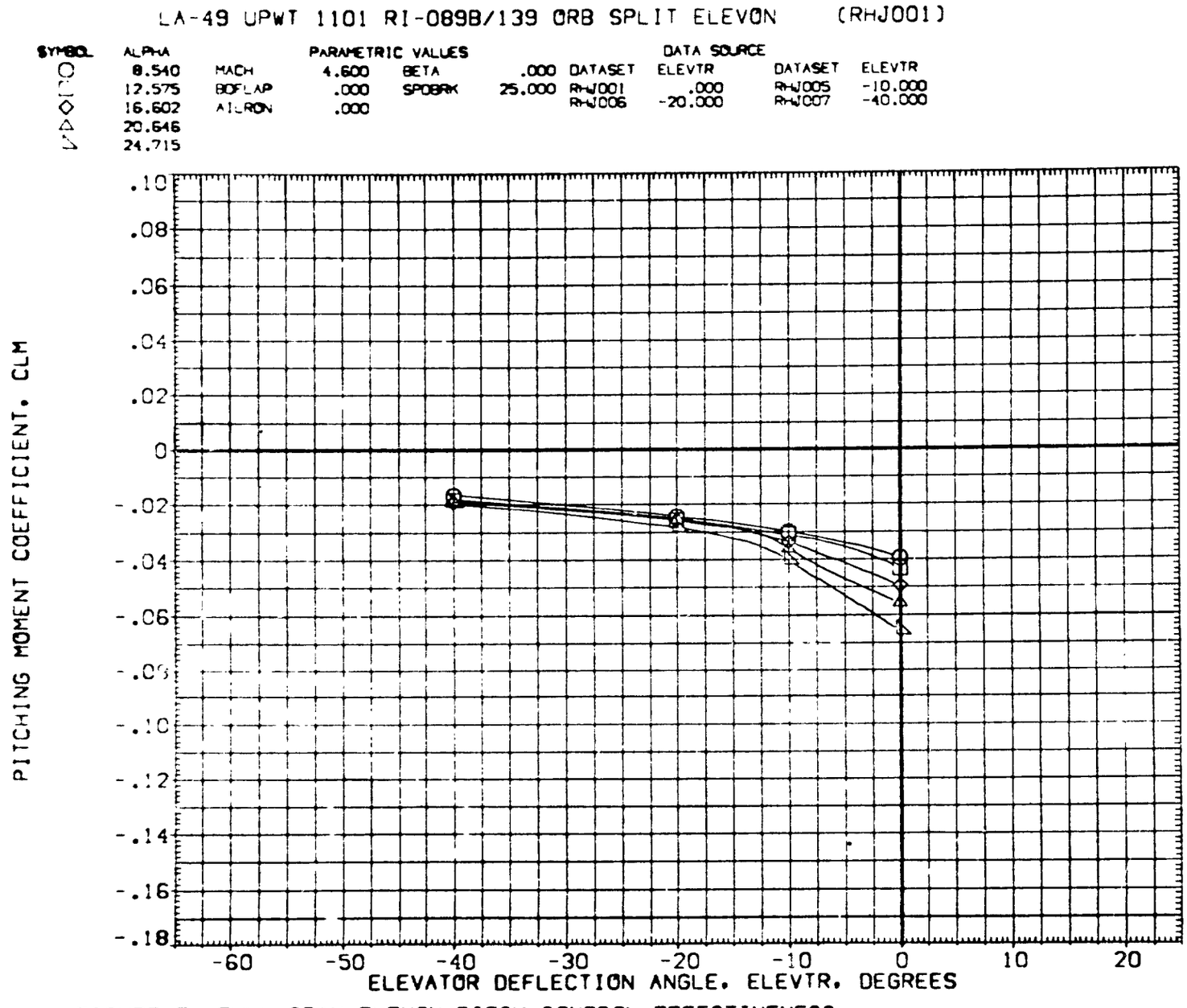


FIGURE 7. FULL SPAN ELEVON PITCH CONTROL EFFECTIVENESS

LA-49 UPWT 1101 RI-089B/139 ORB SPLIT ELEVON (RHJ001)

SYMBOL	ALPHA		PARAMETRIC VALUES			DATA SOURCE			
○	28.780	MACH	4.600	BETA	.000	DATASET	ELEVTR	DATASET	ELEVTR
□	32.804	BDFLAP	.000	SPDBRK	75.000	RHJ001	.000	RHJ005	-10.000
◇	36.891	AILRON	.000			RHJ006	-20.000	RHJ007	-40.000
△	40.981								

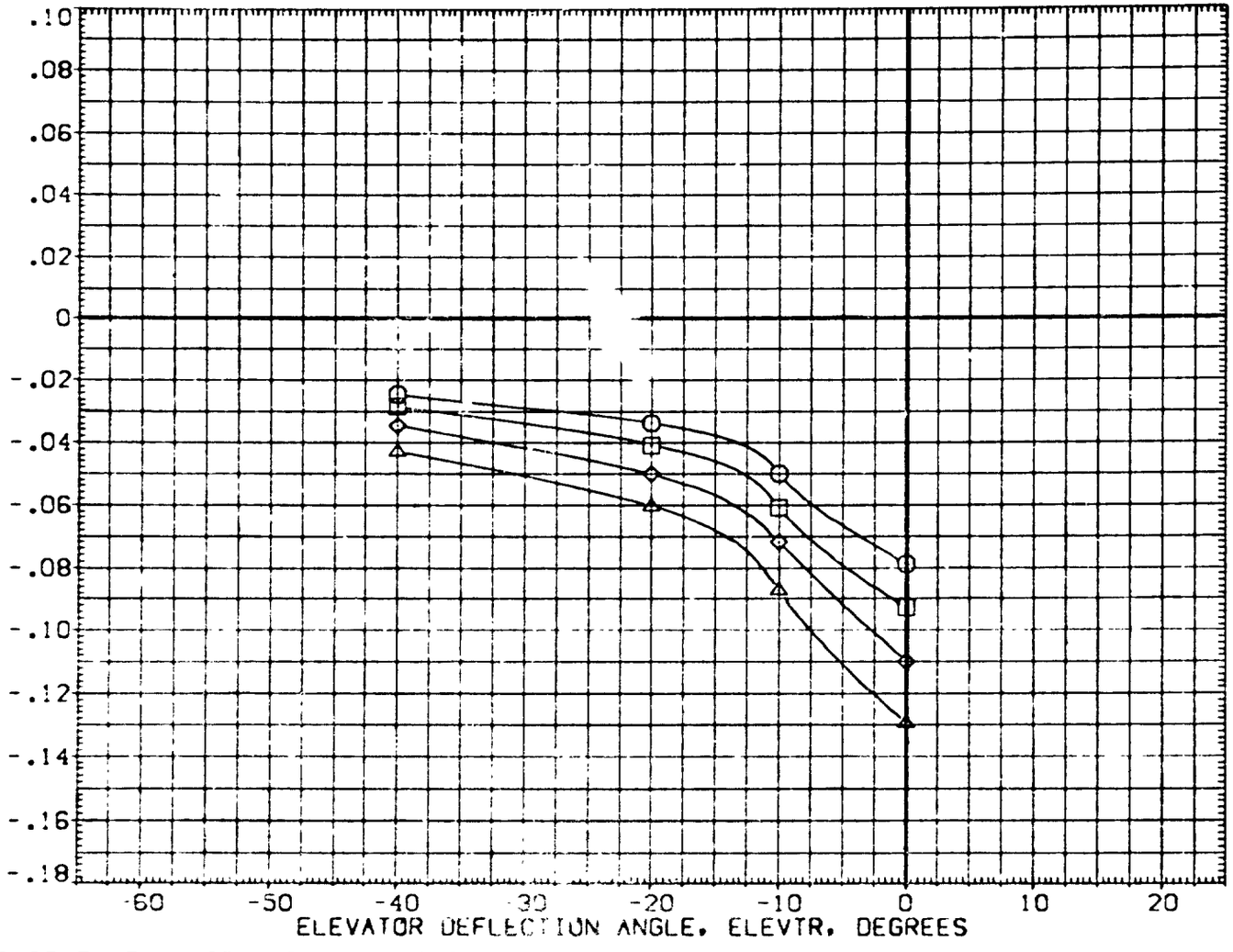


FIGURE 7. FULL SPAN ELEVON PITCH CONTROL EFFECTIVENESS

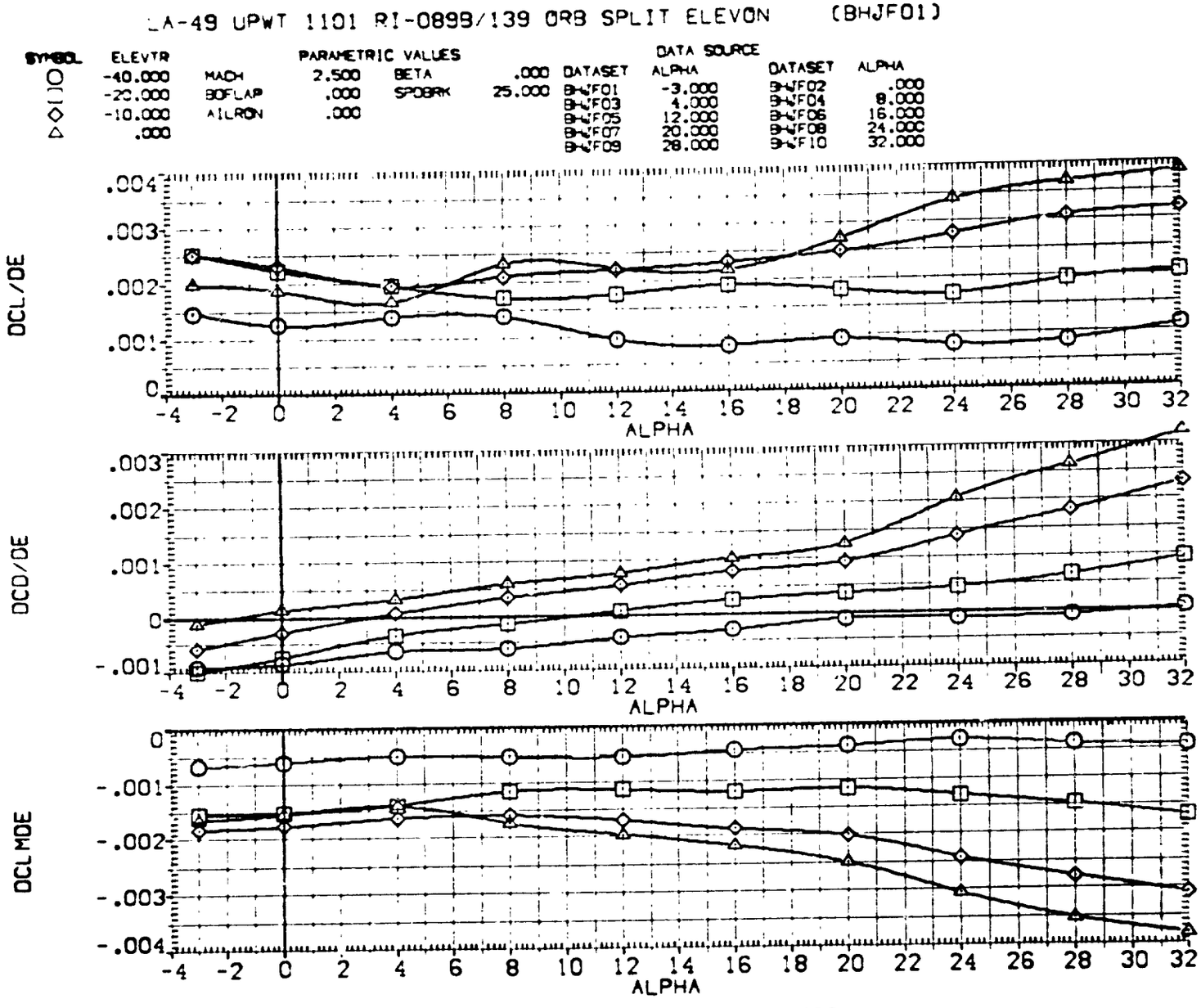


FIGURE 7. FULL SPAN ELEVON PITCH CONTROL EFFECTIVENESS

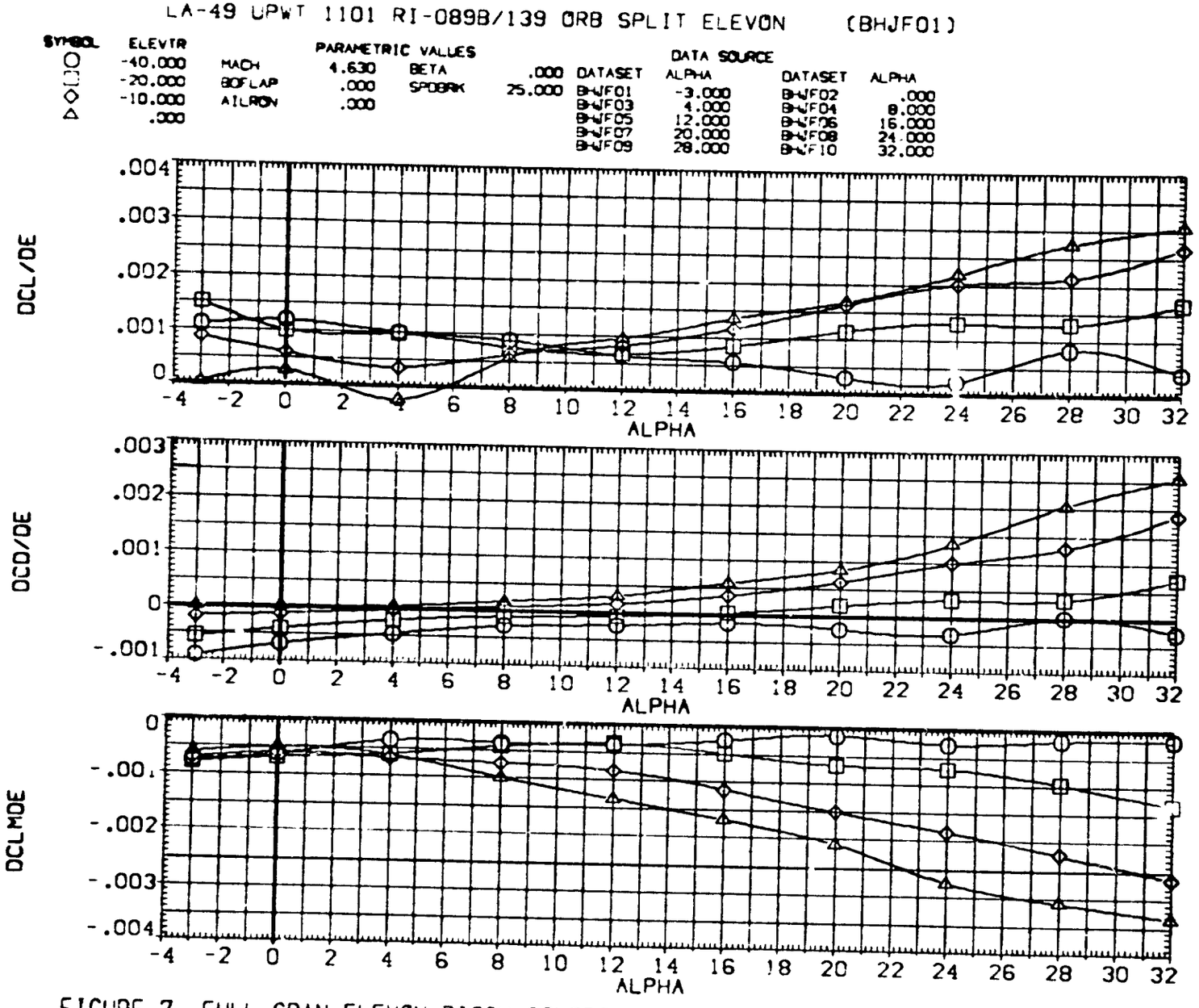


FIGURE 7. FULL SPAN ELEVON PITCH CONTROL EFFECTIVENESS

LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON (RHJ004)

SYMBOL	ALPHA		PARAMETRIC VALUES			DATA SOURCE			
○	-4.072	MACH	2.500	BETA	.000	DATASET	ELV-LI	DATASET	ELV-LI
□	-.004	ELV-LO	.000	ELV-RO	.000	RHJ004	-40.000	RHJ003	-20.000
◇	4.092	BDFLAP	.000	SPOBRK	25.000	RHJ002	-10.000	RHJ001	.000
△	8.130	AILRON	.000						
▽	12.224								

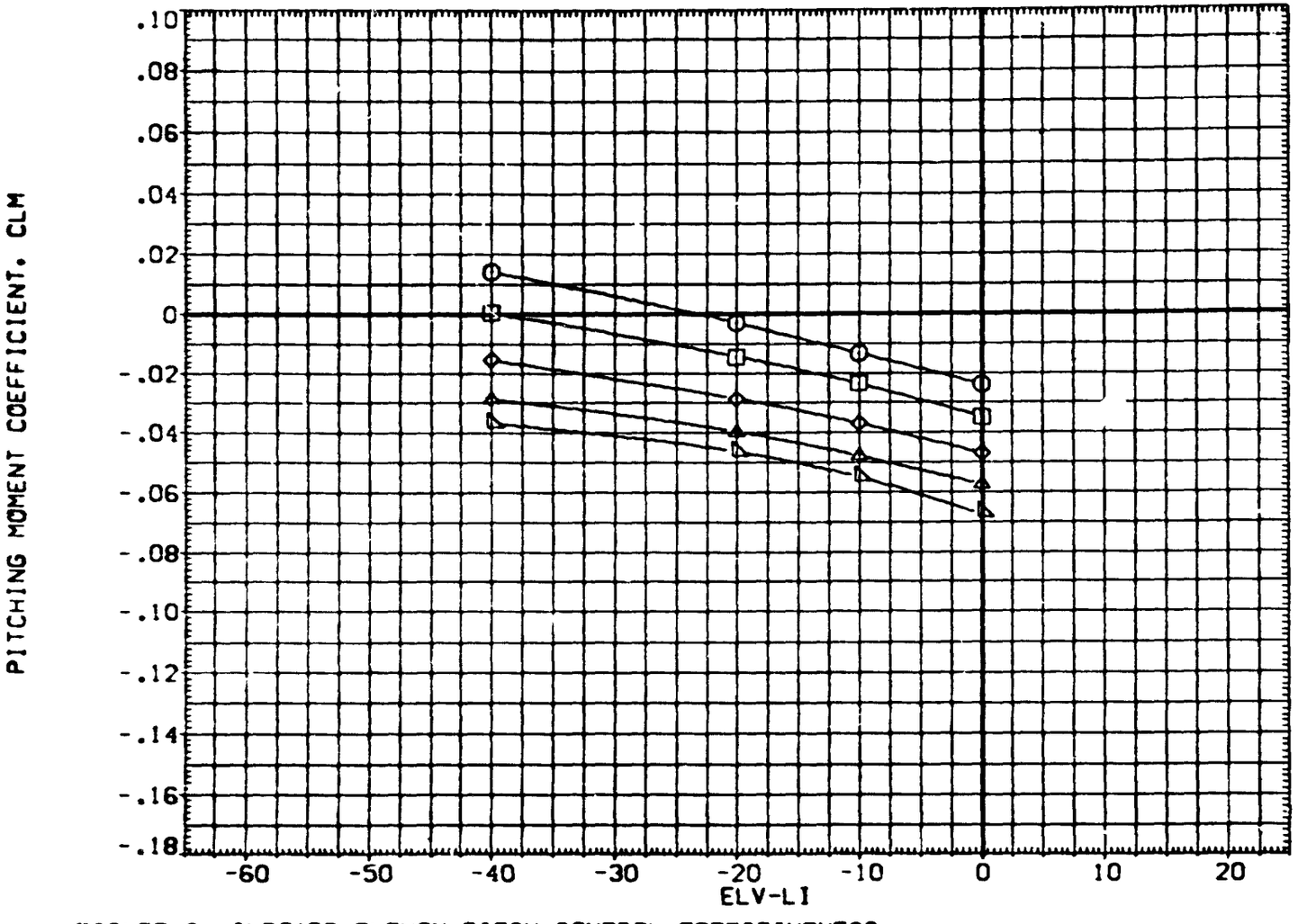
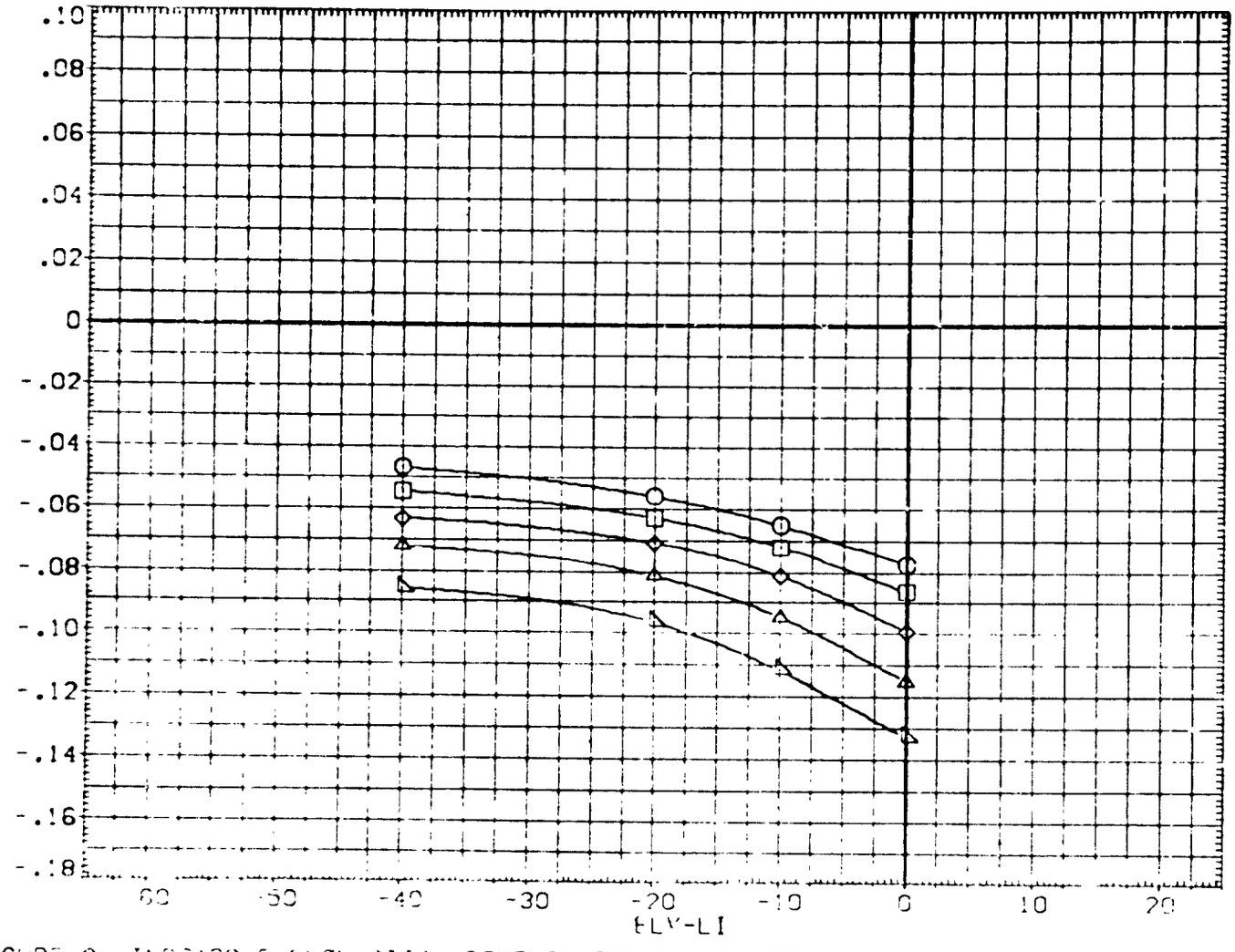


FIGURE 8. INBOARD ELEVON PITCH CONTROL EFFECTIVENESS

LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON (RHJ004)

SYMBOL	ALPHA		PARAMETRIC VALUES			DATA SOURCE			
○	16.315	MACH	2.500	BETA	.000	DATASET	ELV-LI	DATASET	ELV-LI
□	20.436	ELV-LO	.000	ELV-RO	.000	RHJ004	-40.000	RHJ003	-20.000
◇	24.518	BOFLAP	.000	SPOBRK	25.000	RHJ002	-10.000	RHJ001	.000
△	28.652	AILRON	.000						
▽	32.770								



PITCHING MOMENT COEFFICIENT, CLM

FIGURE 8. [illegible] CONTROL EFFECTIVENESS

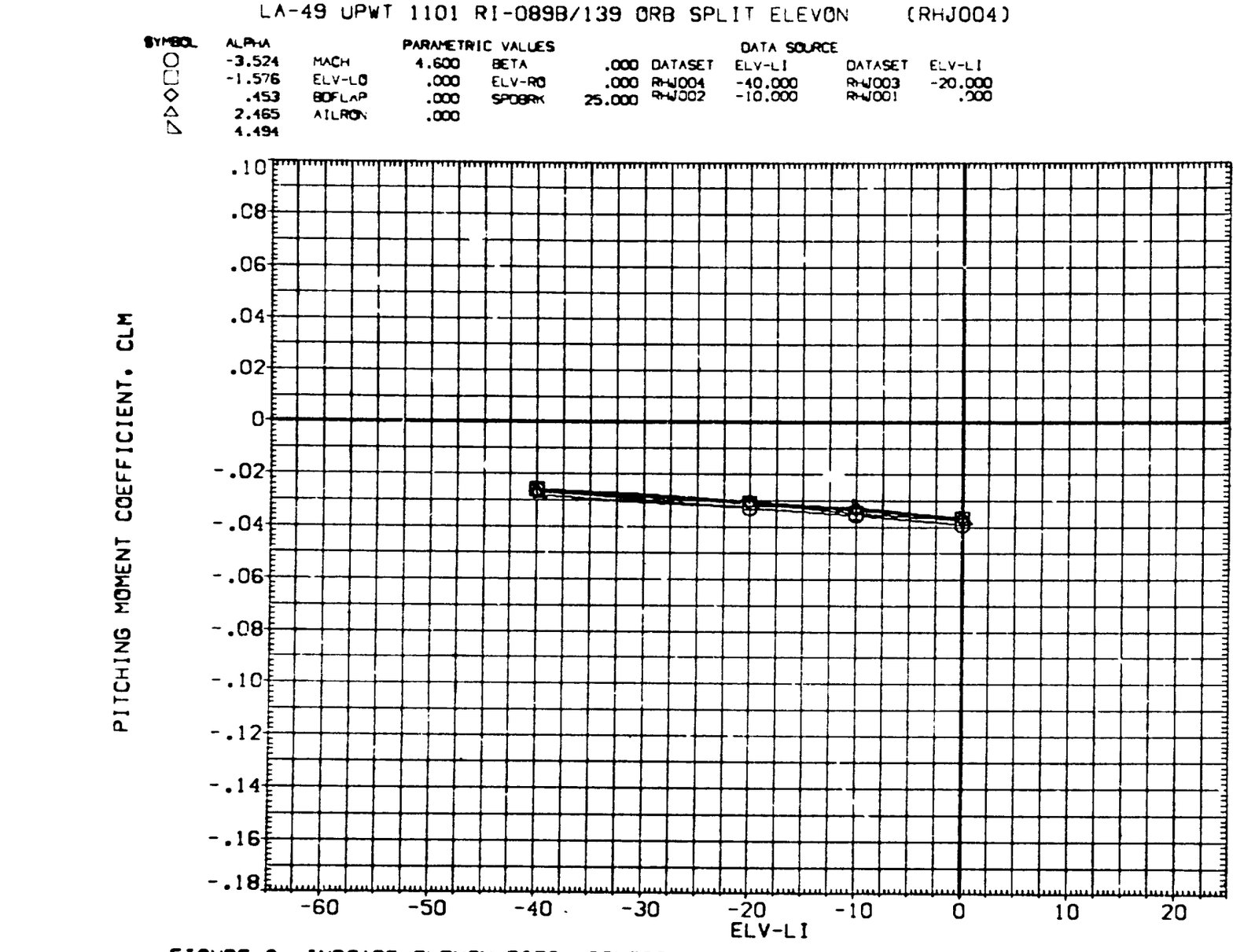


FIGURE 8. INBOARD ELEVON PITCH CONTROL EFFECTIVENESS

LA-49 UPWT 1101 RI-089B/139 ORB SPLIT ELEVON (RHJ004)

SYMBOL	ALPHA		PARAMETRIC VALUES			DATA SOURCE			
○	8.534	MACH	4.600	BETA	.000	DATASET	ELV-LI	DATASET	ELV-LI
□	12.570	ELV-LO	.000	ELV-RO	.000	RHJ004	-40.000	RHJ003	-20.000
◇	16.591	BOFLAP	.000	SPOBRK	25.000	RHJ002	-10.000	RHJ001	.000
△	20.636	AILRON	.000						
▽	24.738								

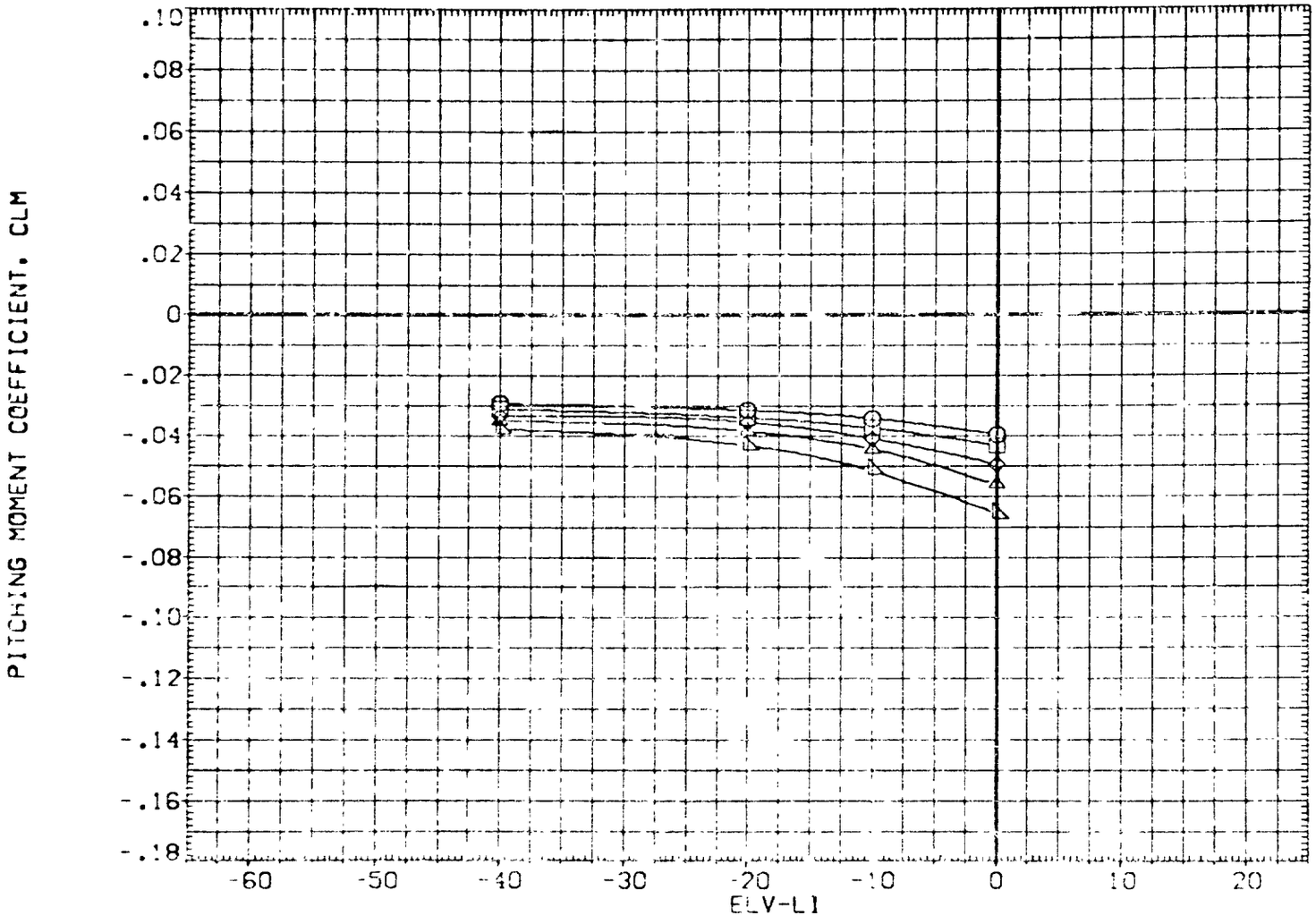


FIGURE 8. INBOARD ELEVON PITCH CONTROL EFFECTIVENESS

LA-49 UPWT 1101 RI-089B/139 ORB SPLIT ELEVON (RHJ004)

SYMBOL	ALPHA		PARAMETRIC VALUES			DATA SOURCE			
○	28.760	MACH	4.600	BETA	.000	DATASET	ELV-LI	DATASET	ELV-LI
□	32.826	ELV-LO	.000	ELV-RO	.000	RHJ004	-40.000	RHJ003	-20.000
◇	36.901	BOFLAP	.000	SPOBRK	25.000	RHJ002	-10.000	RHJ001	.000
△	40.956	AILRON	.000						

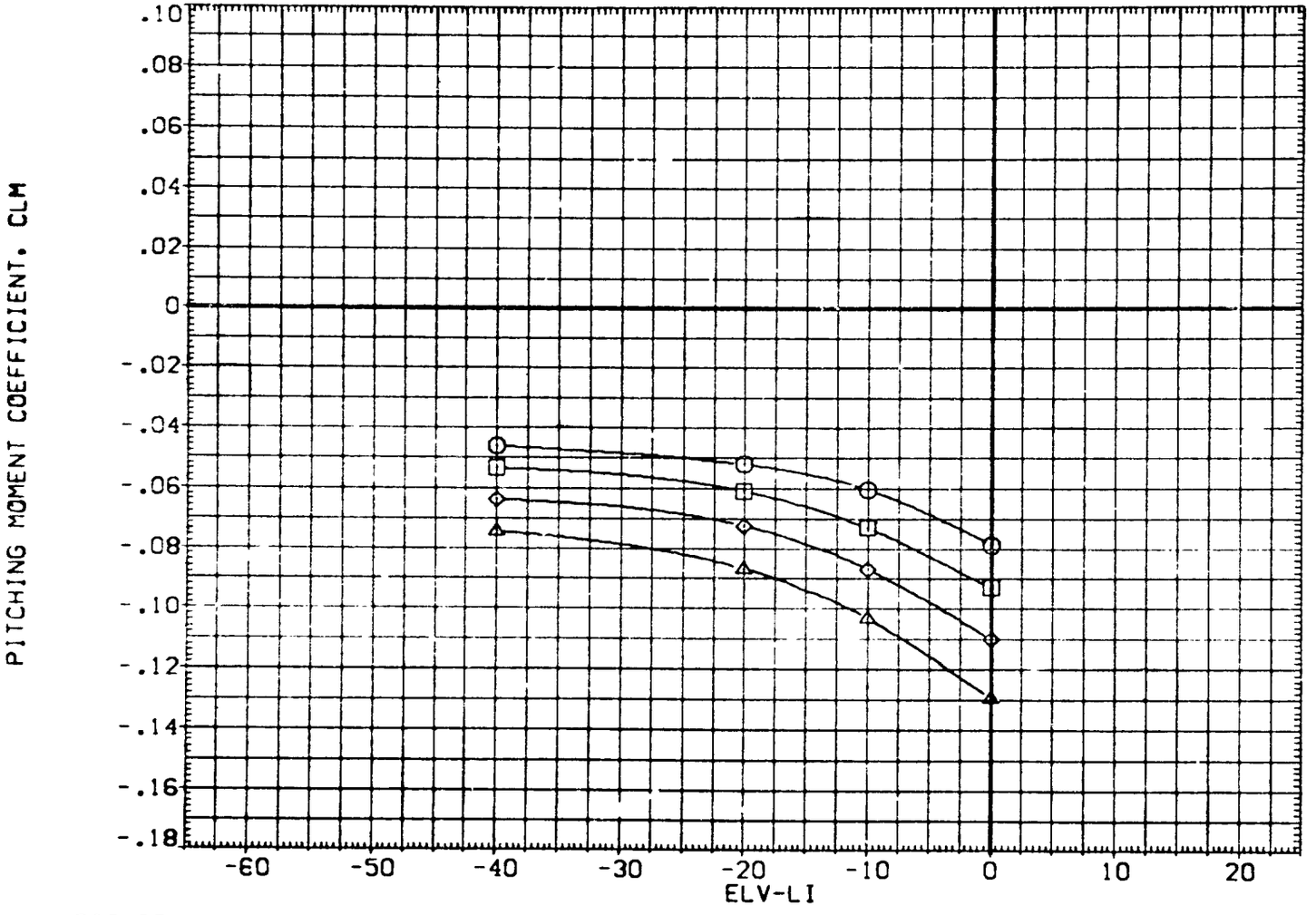


FIGURE 8. INBOARD ELEVON PITCH CONTROL EFFECTIVENESS

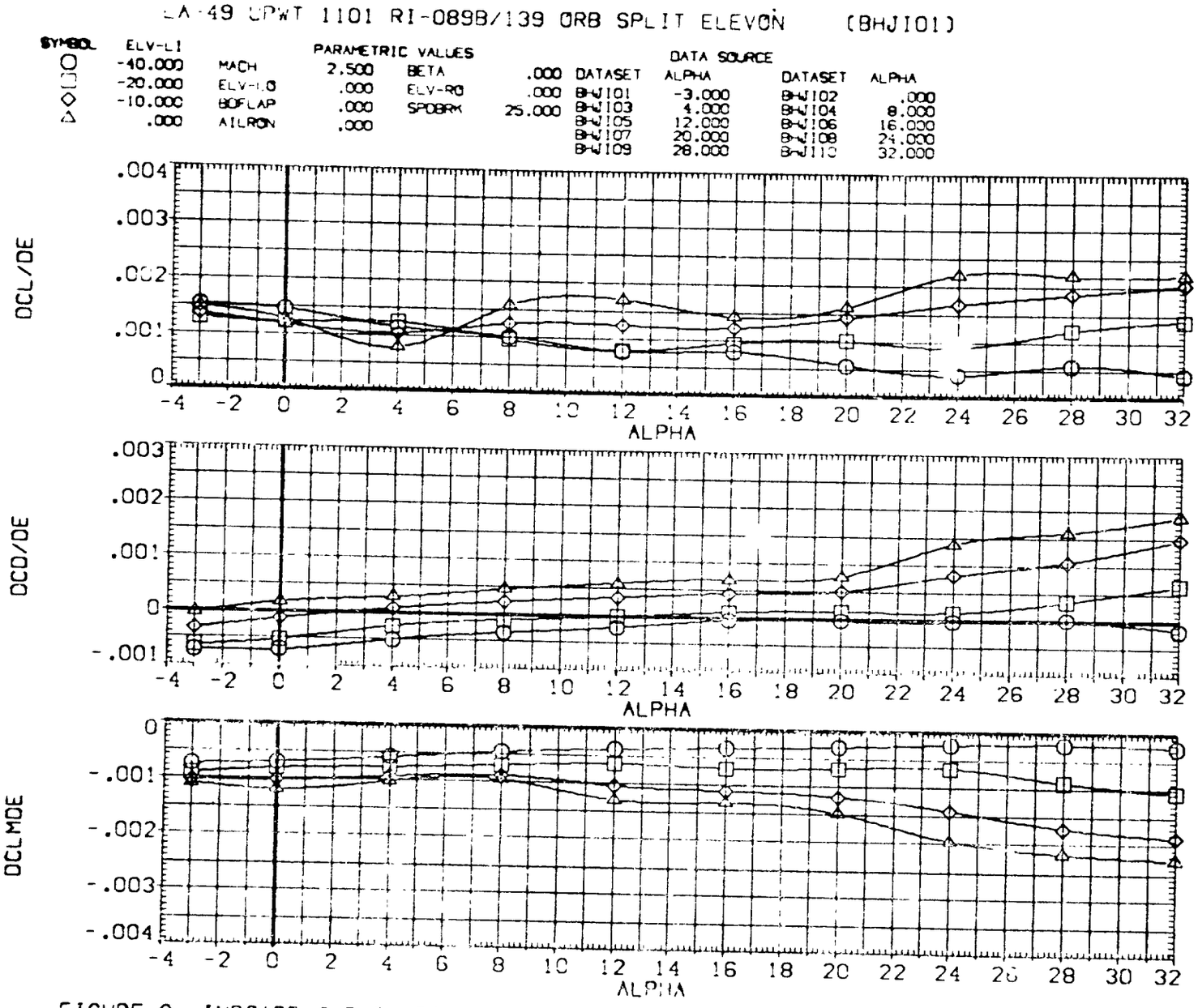


FIGURE 8. INBOARD ELEVON PITCH CONTROL EFFECTIVENESS

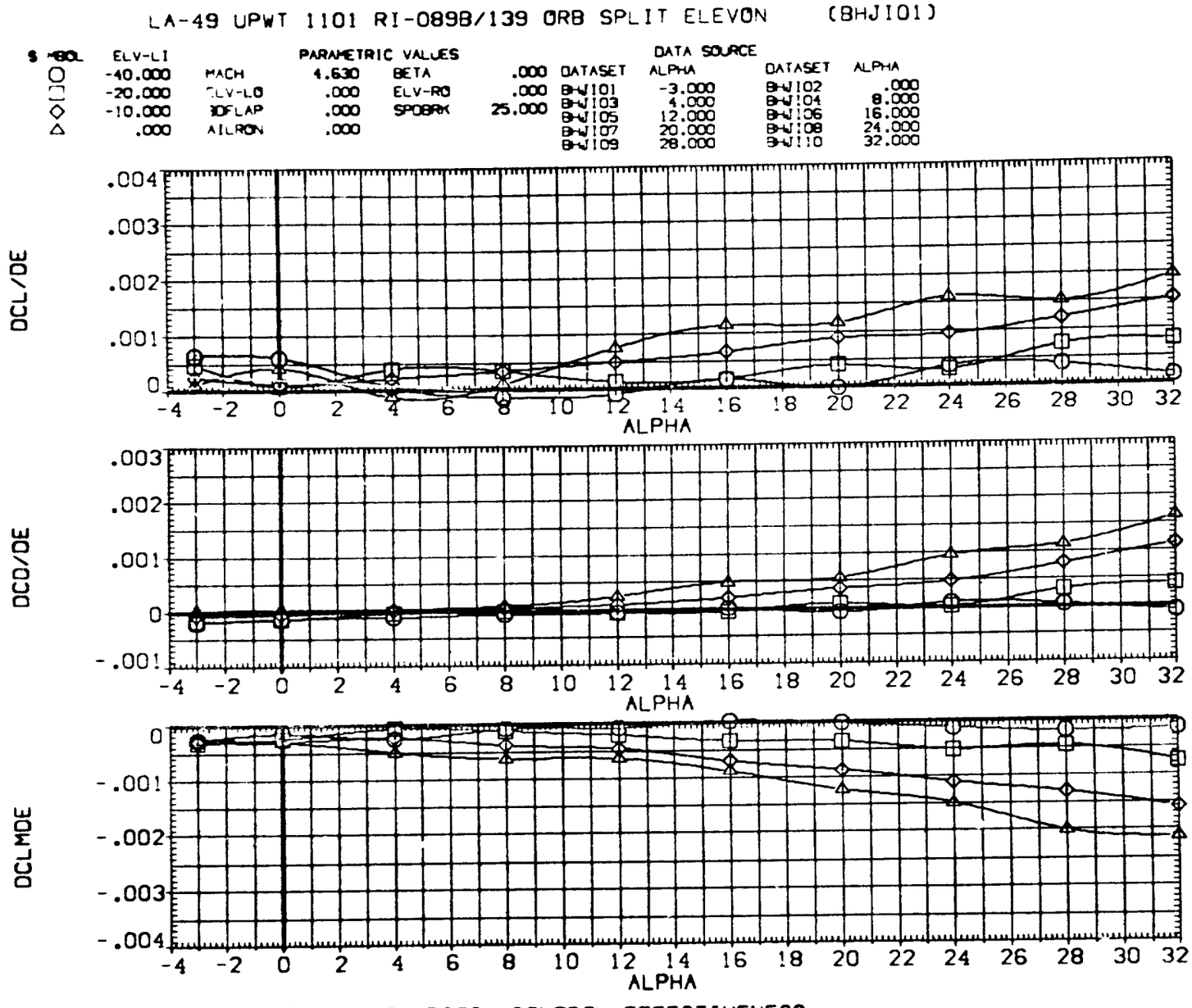


FIGURE 8. INBOARD ELEVON PITCH CONTROL EFFECTIVENESS

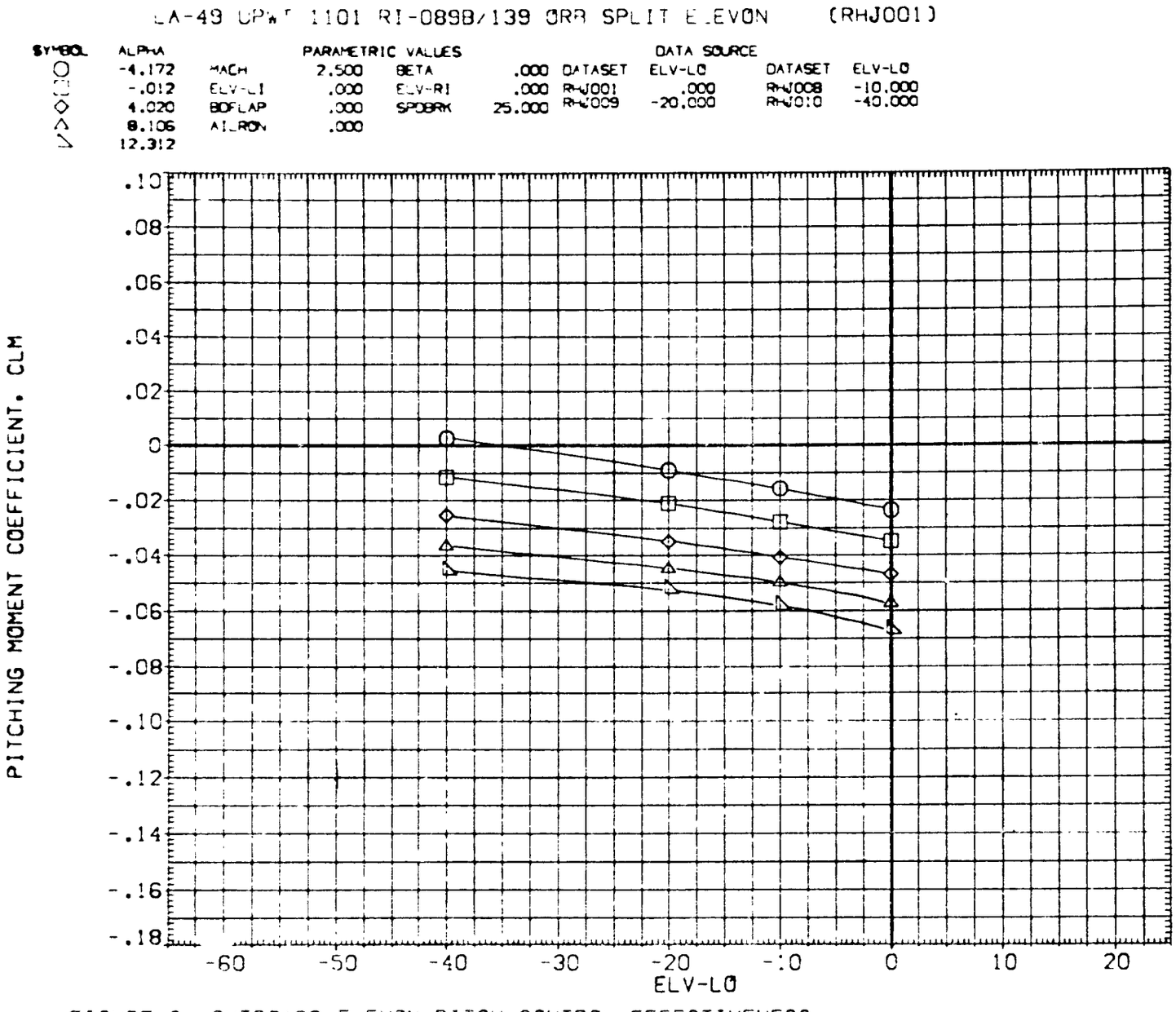


FIGURE 9. OUTBOARD ELEVON PITCH CONTROL EFFECTIVENESS

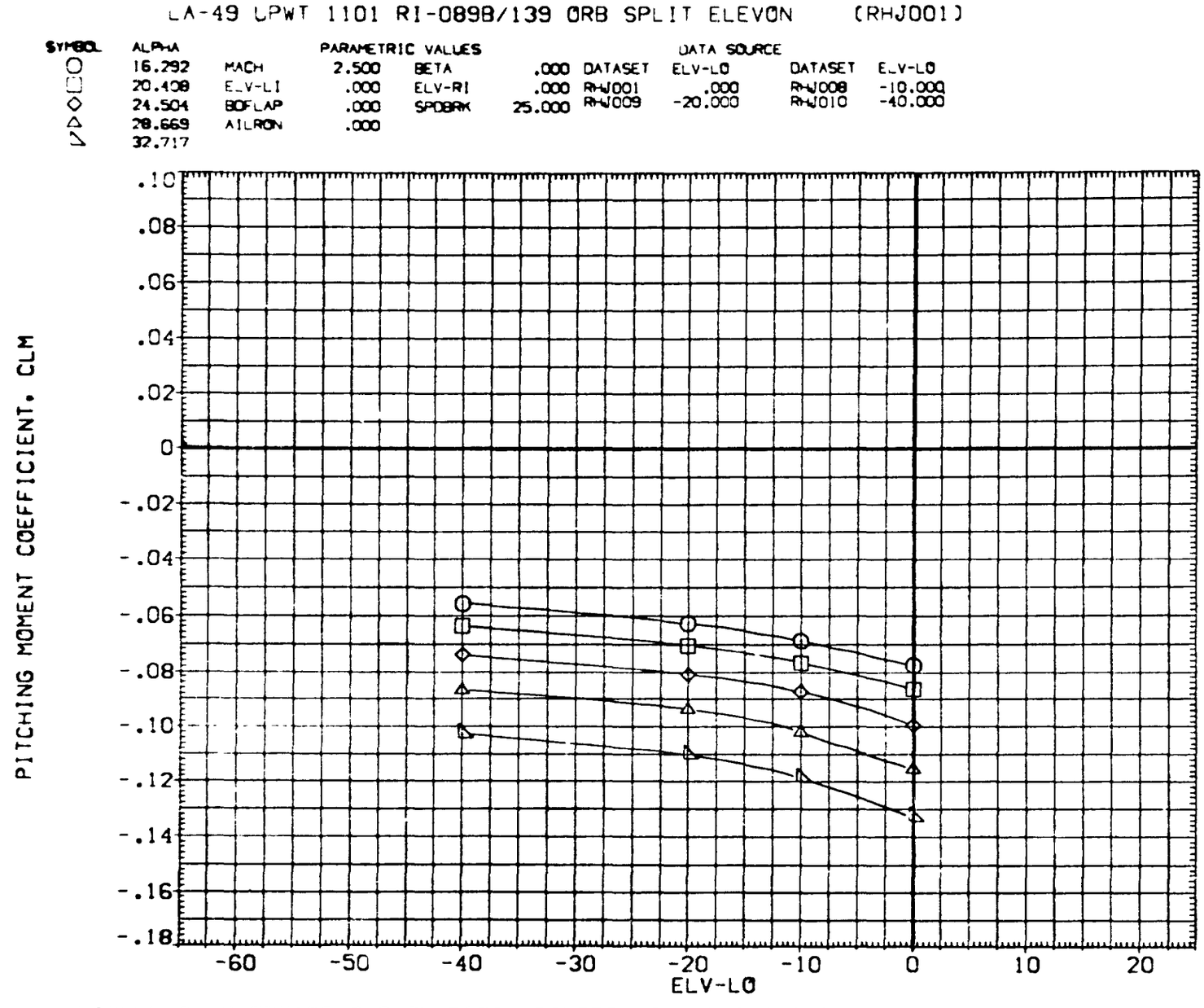


FIGURE 9. OUTBOARD ELEVON PITCH CONTROL EFFECTIVENESS

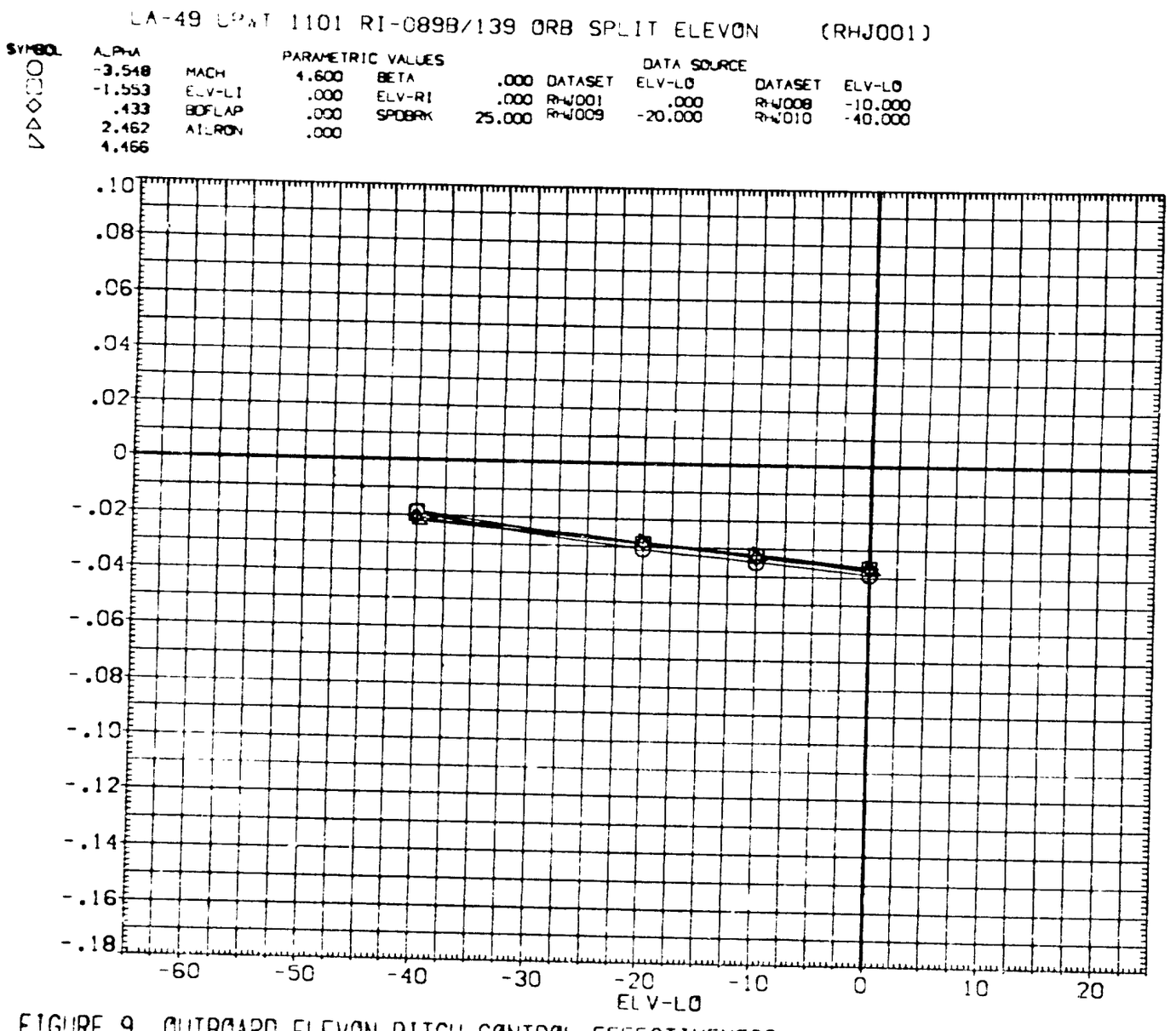


FIGURE 9. OUTBOARD ELEVON PITCH CONTROL EFFECTIVENESS

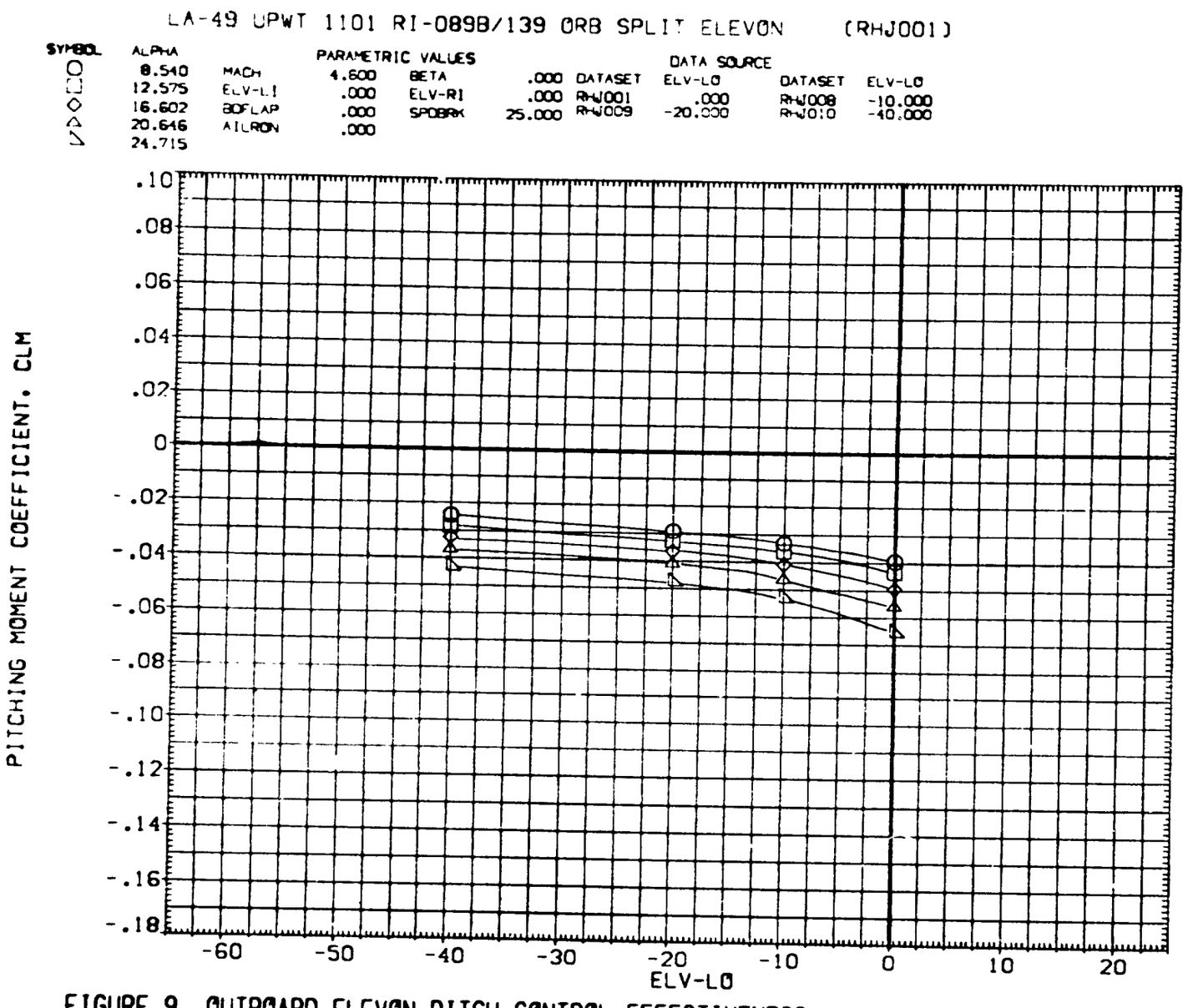


FIGURE 9. OUTBOARD ELEVON PITCH CONTROL EFFECTIVENESS

LA-49 UPWT 1101 RI-089B/139 ORB SPLIT ELEVON (RHJ001)

SYMBOL	ALPHA		PARAMETRIC VALUES			DATA SOURCE			
○	28.780	MACH	4.600	BETA	.000	DATASET	ELV-LO	DATASET	ELV-LO
□	32.804	ELV-LI	.000	ELV-RI	.000	RHJ001	.000	RHJ008	-10.000
◇	36.891	BDFLAP	.000	SPOSPK	25.000	RHJ009	-20.000	RHJ010	-40.000
△	40.981	AILRON	.000						

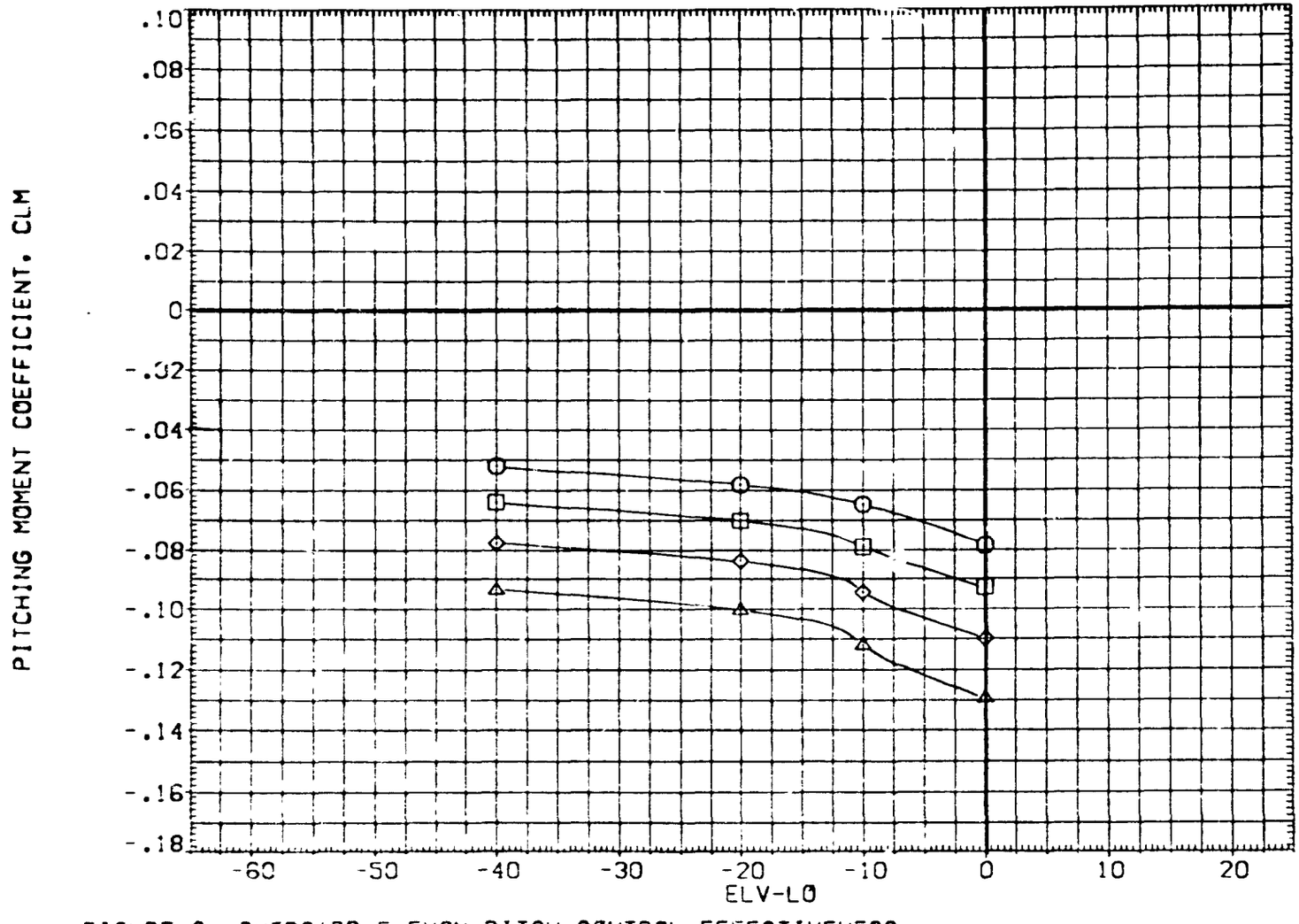


FIGURE 9. OUTBOARD ELEVON PITCH CONTROL EFFECTIVENESS

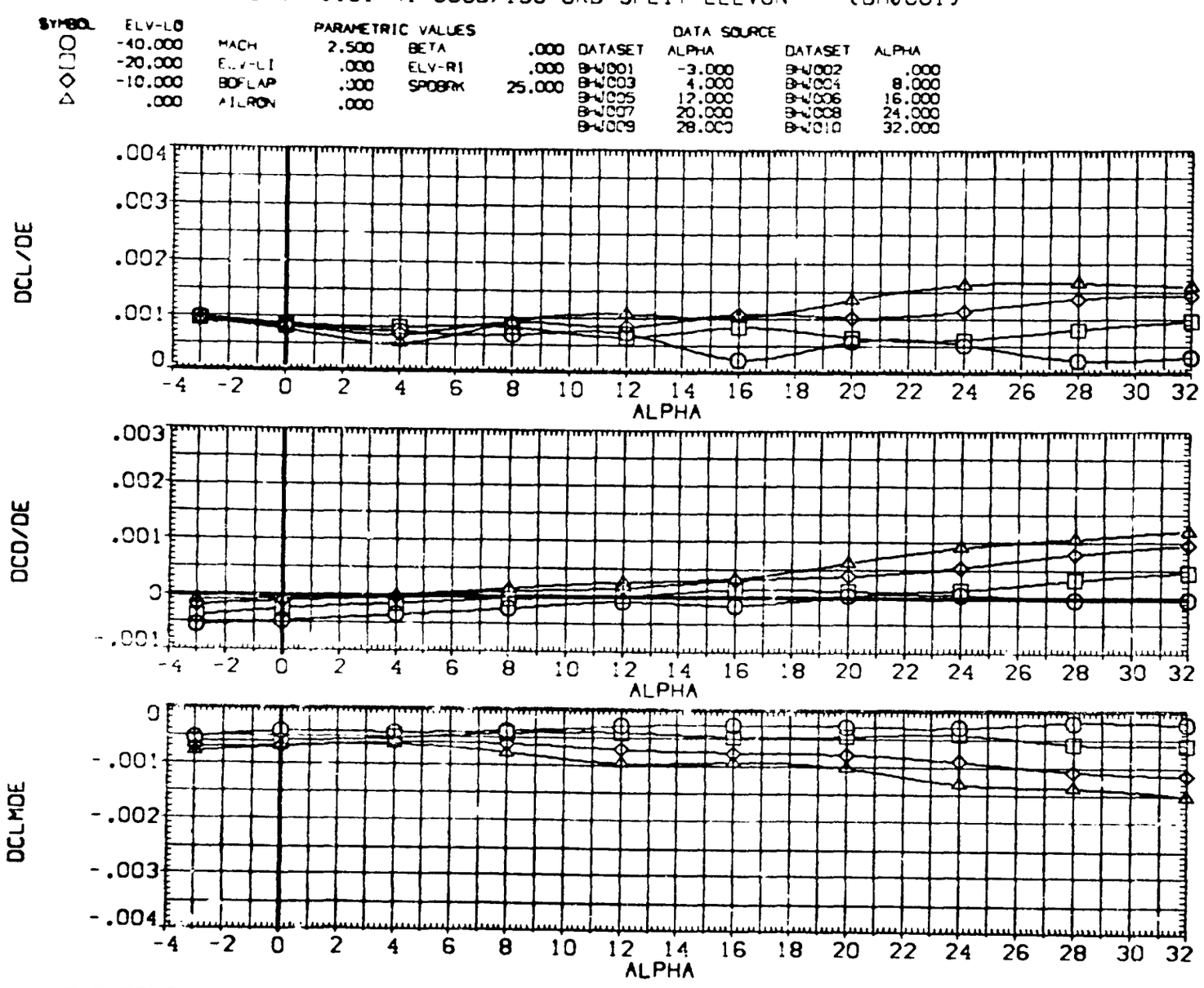


FIGURE 9. OUTBOARD ELEVON PITCH CONTROL EFFECTIVENESS

LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON (BHJ001)

SYMBOL	ELV-LO		PARAMETRIC VALUES			DATA SOURCE			
	-40.000	MACH	4.630	BETA	.000	DATASET	ALPHA	DATASET	ALPHA
	-20.000	ELV-LI	.000	ELV-RI	.000	BHJ001	-3.000	BHJ002	.000
	-10.000	BOFLAP	.000	SPOBRK	25.000	BHJ003	4.000	BHJ004	8.000
	.000	AILRON	.000			BHJ005	12.000	BHJ006	16.000
						BHJ007	20.000	BHJ008	24.000
						BHJ009	28.000	BHJ010	32.000

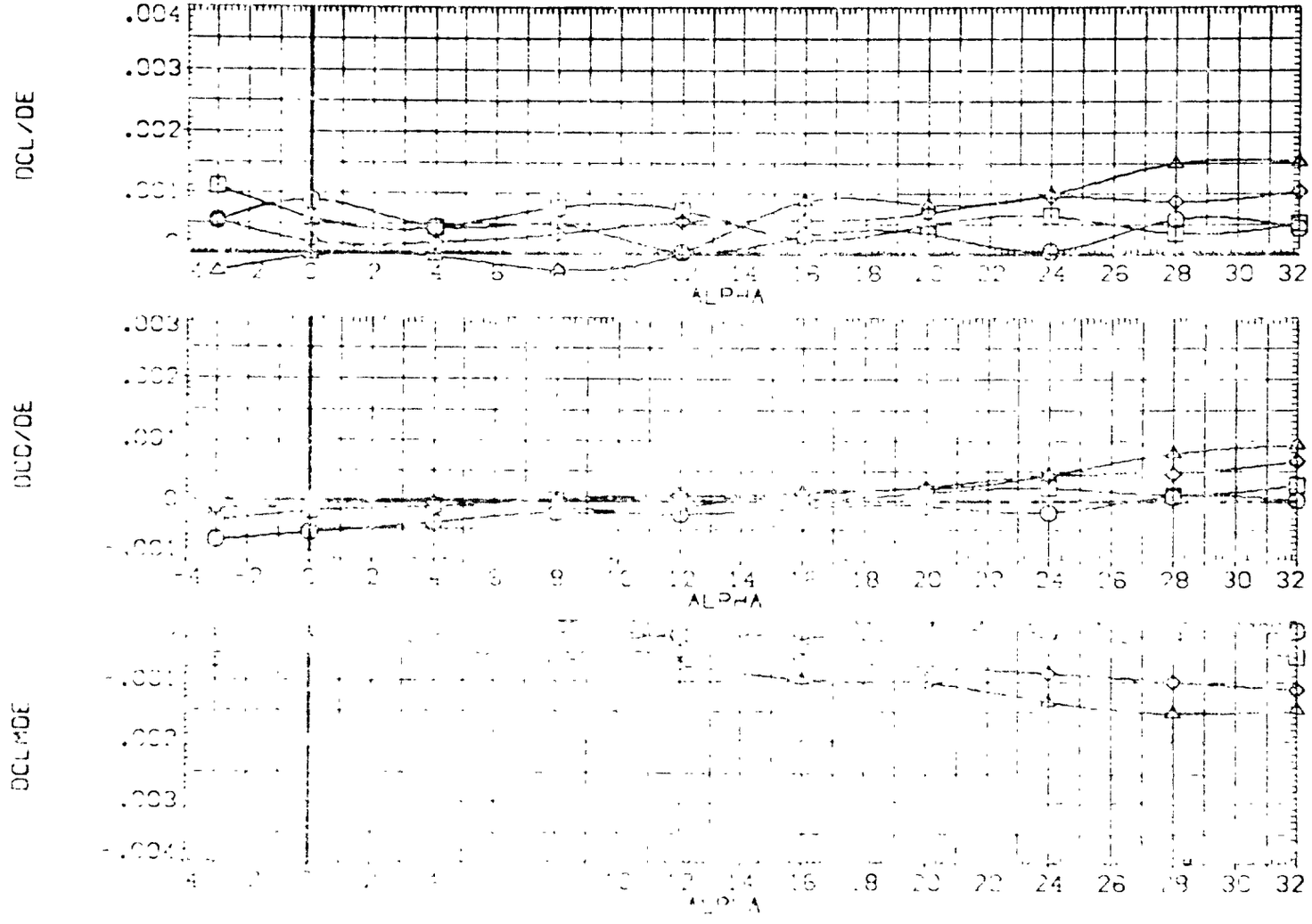


FIGURE 3. [illegible] CONTROL EFFECTIVENESS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[illegible]	[illegible]	-10.000	-10.000	-10.000	-10.000
[illegible]	[illegible]	.000	-10.000	-10.000	.000
[illegible]	[illegible]	-10.000	.000	.000	-10.000

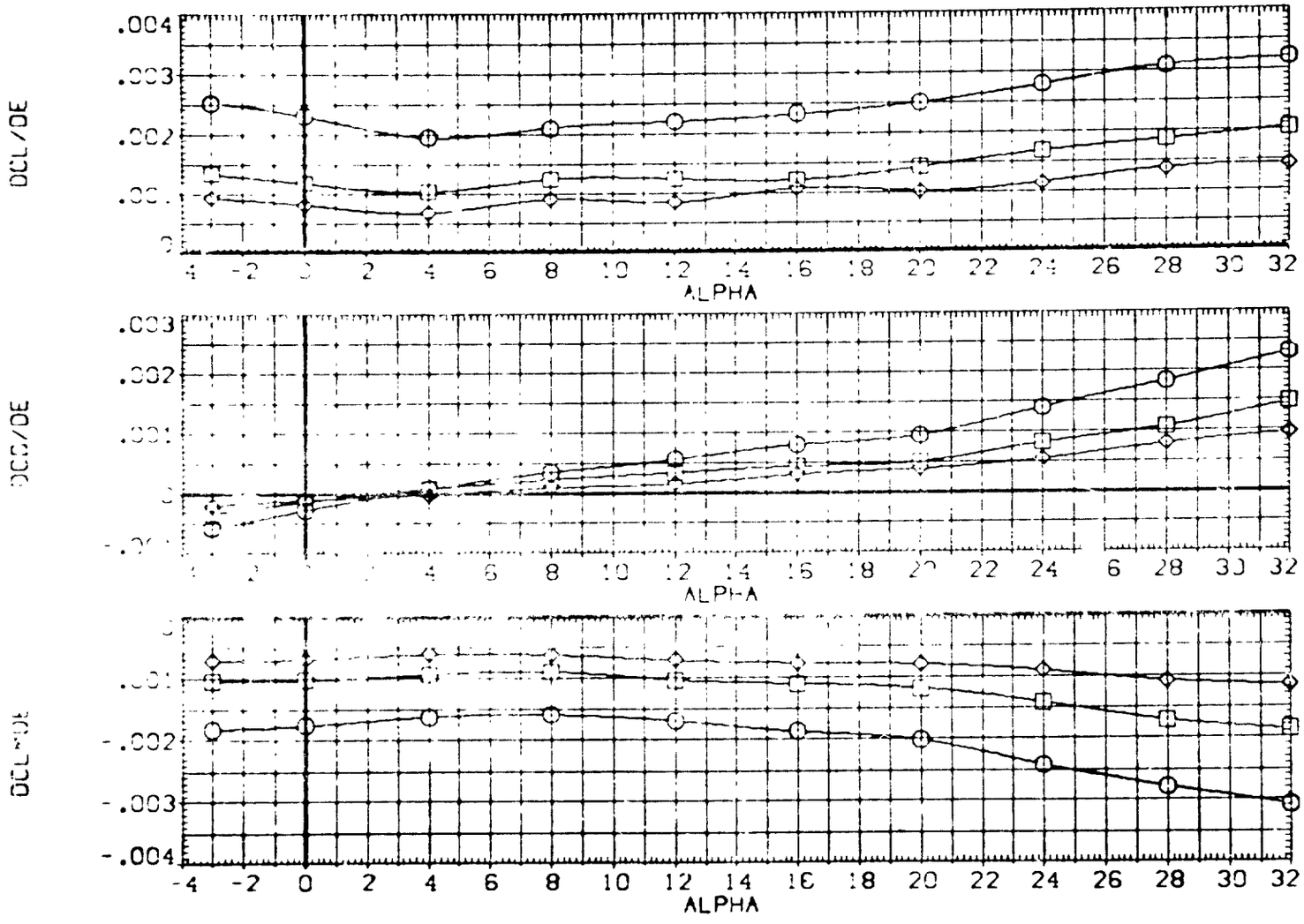


FIGURE 10. COMPARISON OF FULL SPAN, INBOARD AND OUTBOARD PITCH CONTROL (DE=-10)

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[illegible]	□	[illegible]	-10.000	-10.000	-10.000	-10.000
[illegible]	△	[illegible]	.000	-10.000	-10.000	.000
[illegible]	◇	[illegible]	-10.000	.000	.000	-10.000

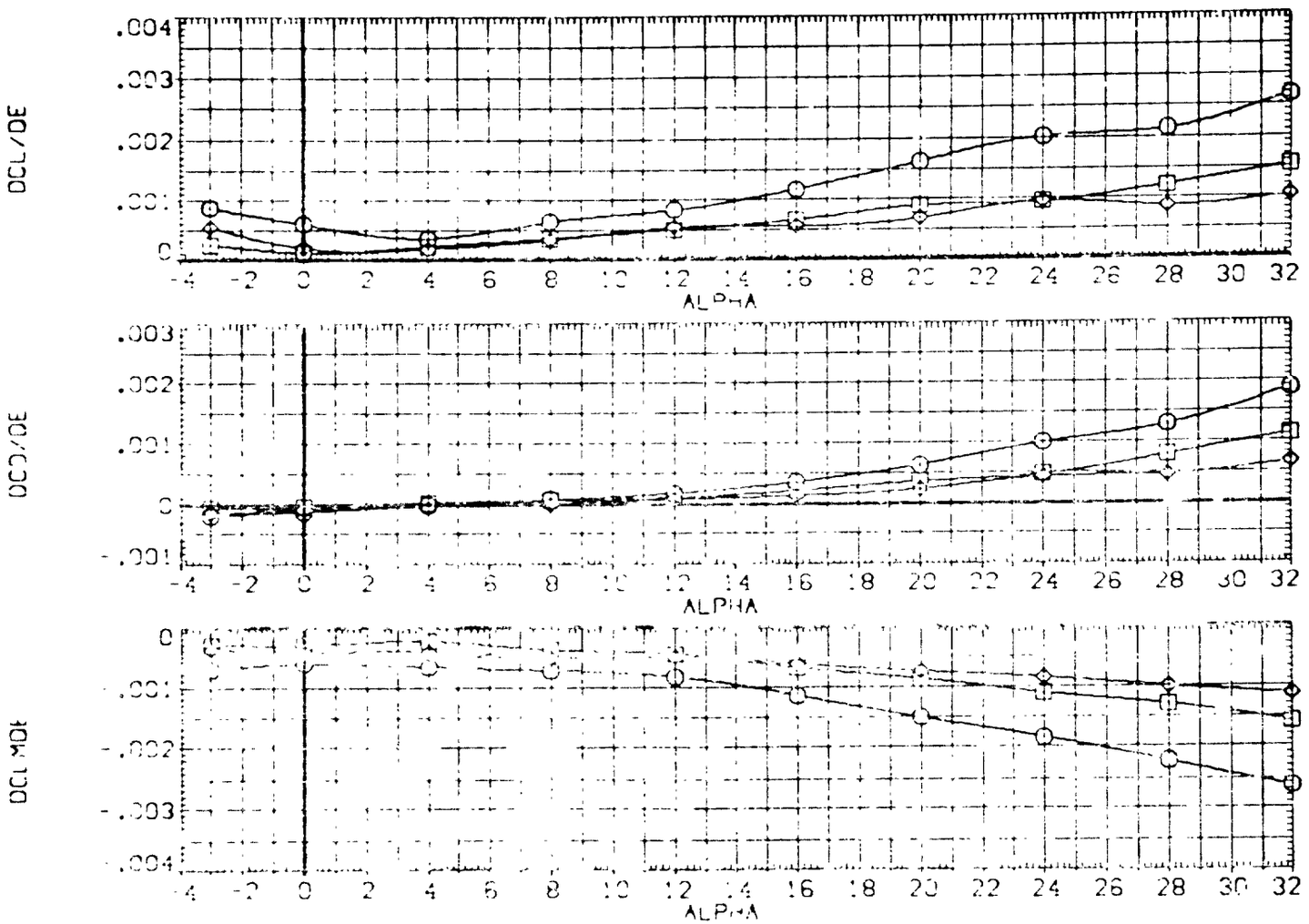


FIGURE 10. COMPARISON OF FULL SPAN, INBOARD AND OUTBOARD PITCH CONTROL (DE=-10)

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(DW006)	□	LA-49 JPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	-20.000	-20.000	-20.000
(DW003)	○	LA-49 JPWT 1101 RI 0898/139 ORB SPLIT ELEVON	.000	-20.000	-20.000	.000
(DW009)	◇	LA-49 JPWT 1101 RI 0898/139 ORB SPLIT ELEVON	-20.000	.000	.000	-20.000

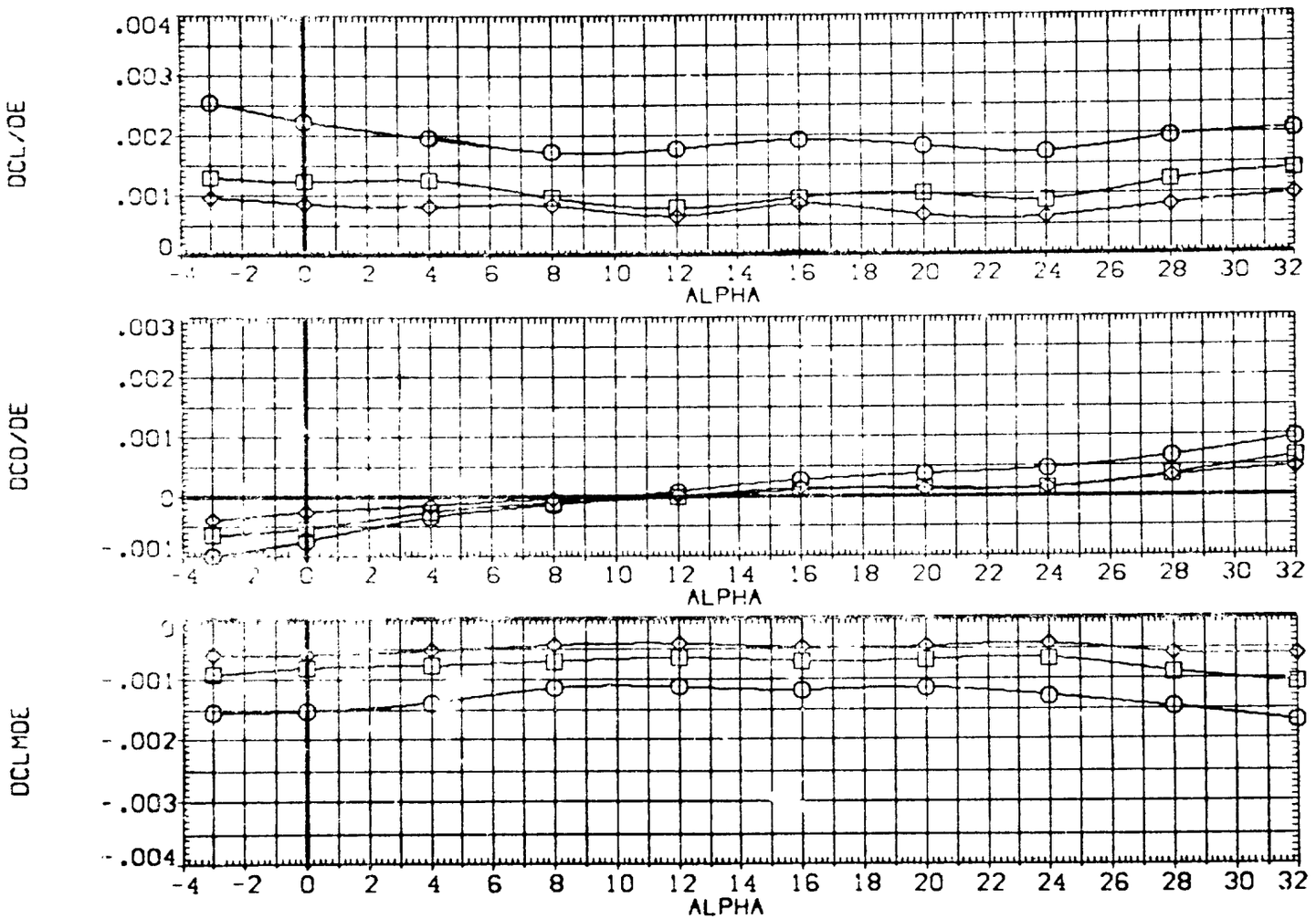


FIGURE 11. COMPARISON OF FULL SPAN, INBOARD AND OUTBOARD PITCH CONTROL (DE=-20)

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[illegible]	□	LA-49 SPLT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	-20.000	-20.000	-20.000
[illegible]	◇	LA-49 SPLT 1101 RI-0899/139 ORB SPLIT ELEVON	.000	-20.000	-20.000	.000
[illegible]	△	LA-49 SPLT 1101 RI-0893/139 ORB SPLIT ELEVON	-20.000	.000	.000	-20.000

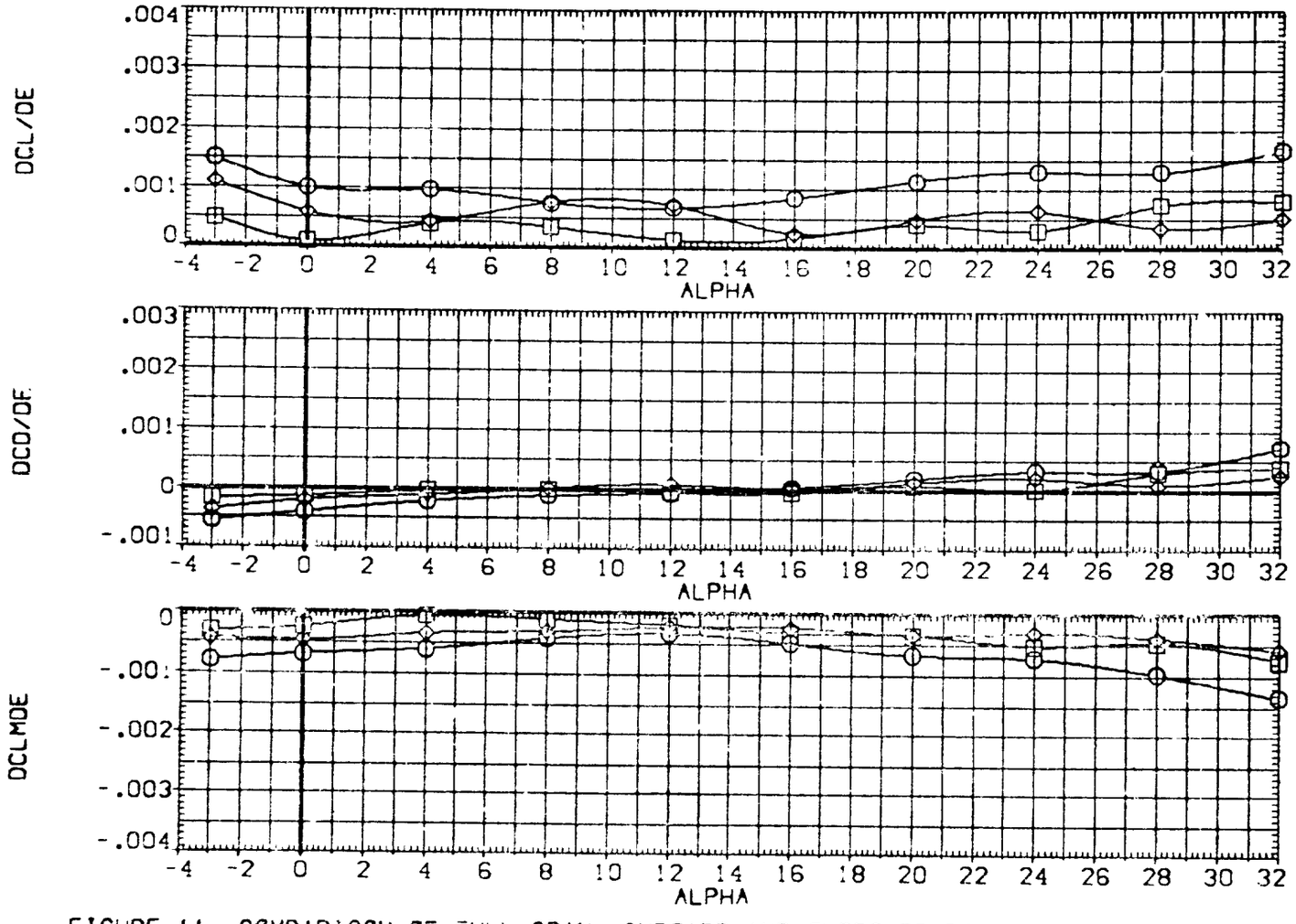


FIGURE 11. COMPARISON OF FULL SPAN, INBOARD AND OUTBOARD PITCH CONTROL (DE=-20)

(B)MACH = 4.63

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
[illegible]	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	-40.000	-40.000	-40.000
[illegible]	○	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	-40.000	-40.000	.000
[illegible]	◇	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	.000	.000	-40.000

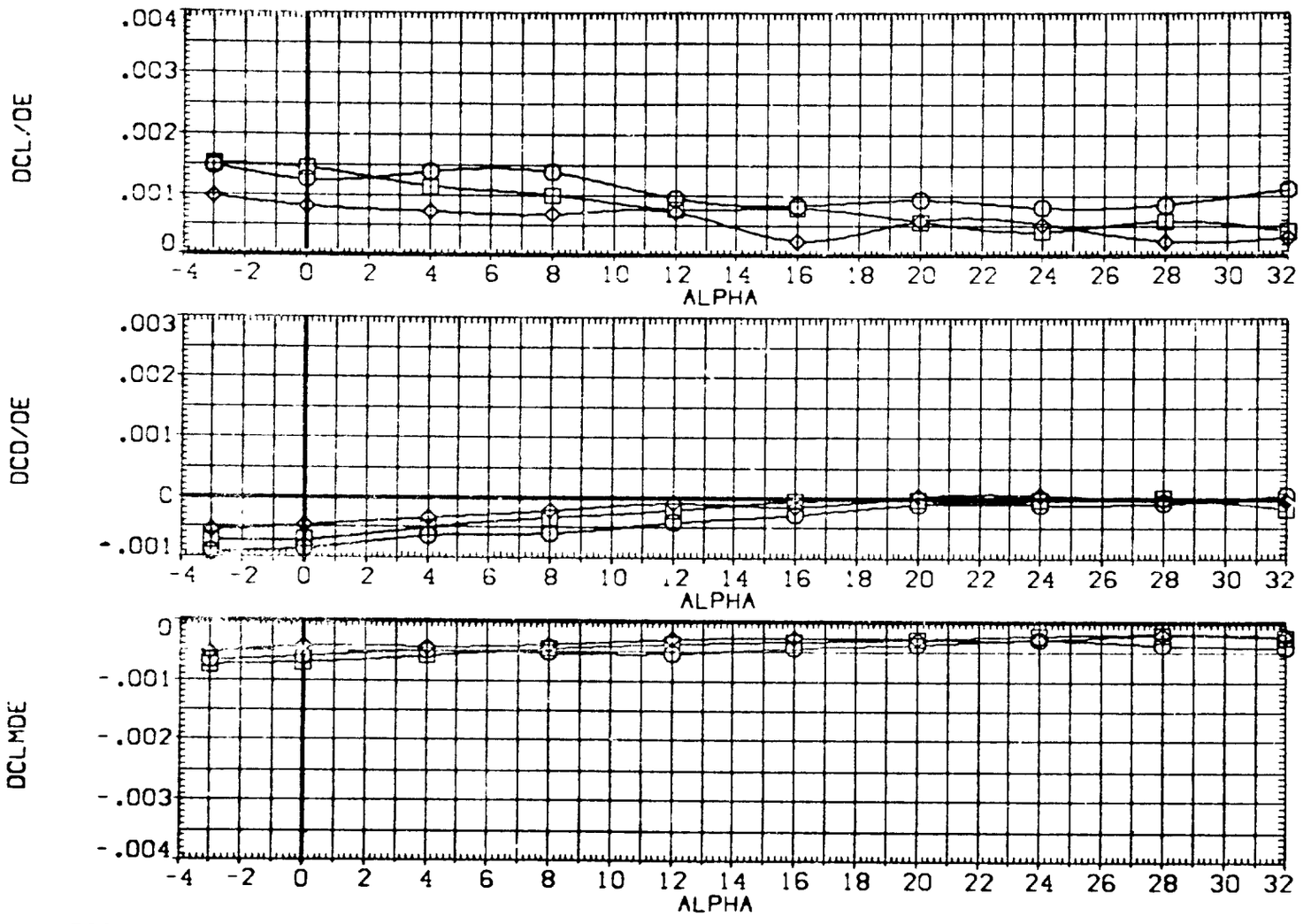


FIGURE 12. COMPARISON OF FULL SPAN, INBOARD AND OUTBOARD PITCH CONTROL (DE=-40)

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(CHV007)	○	LA-49 UPVT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	-40.000	-40.000	-40.000
(CHV004)	□	LA-49 UPVT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	-40.000	-40.000	.000
(CHV010)	◇	LA-49 UPVT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	.000	.000	-40.000

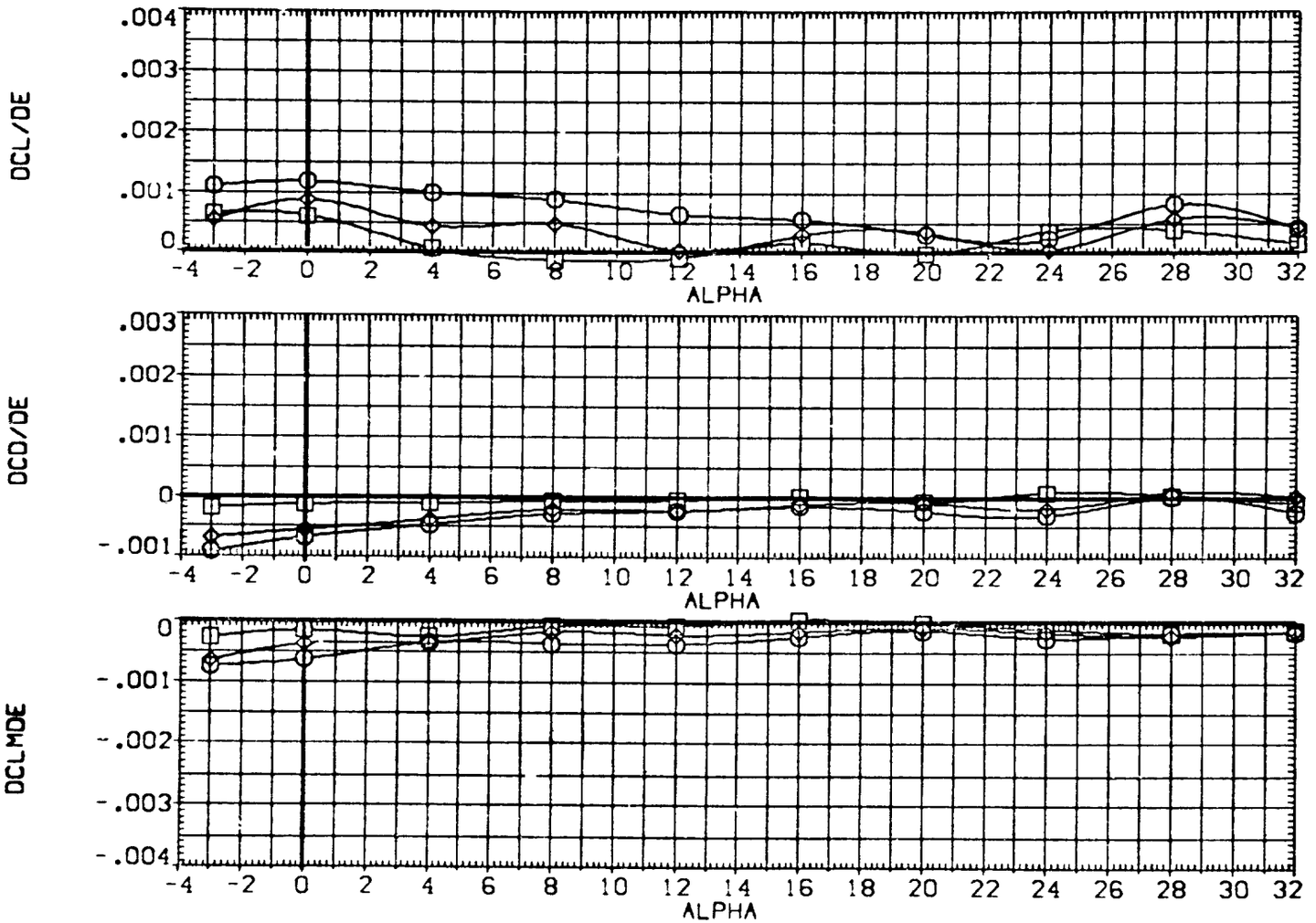


FIGURE 12. COMPARISON OF FULL SPAN. INBOARD AND OUTBOARD PITCH CONTROL (DE=-40)

(B)MACH = 4.63

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(B-J016)	○	LA-49 UPWT 1101 RI-0893/139 0R3 SPLIT ELEVON	10.000	-20.000	-20.000	-10.000
(B-J017)	□	LA-49 UPWT 1101 RI-0893/139 0R8 SPLIT ELEVON	10.000	-40.000	-40.000	-10.000

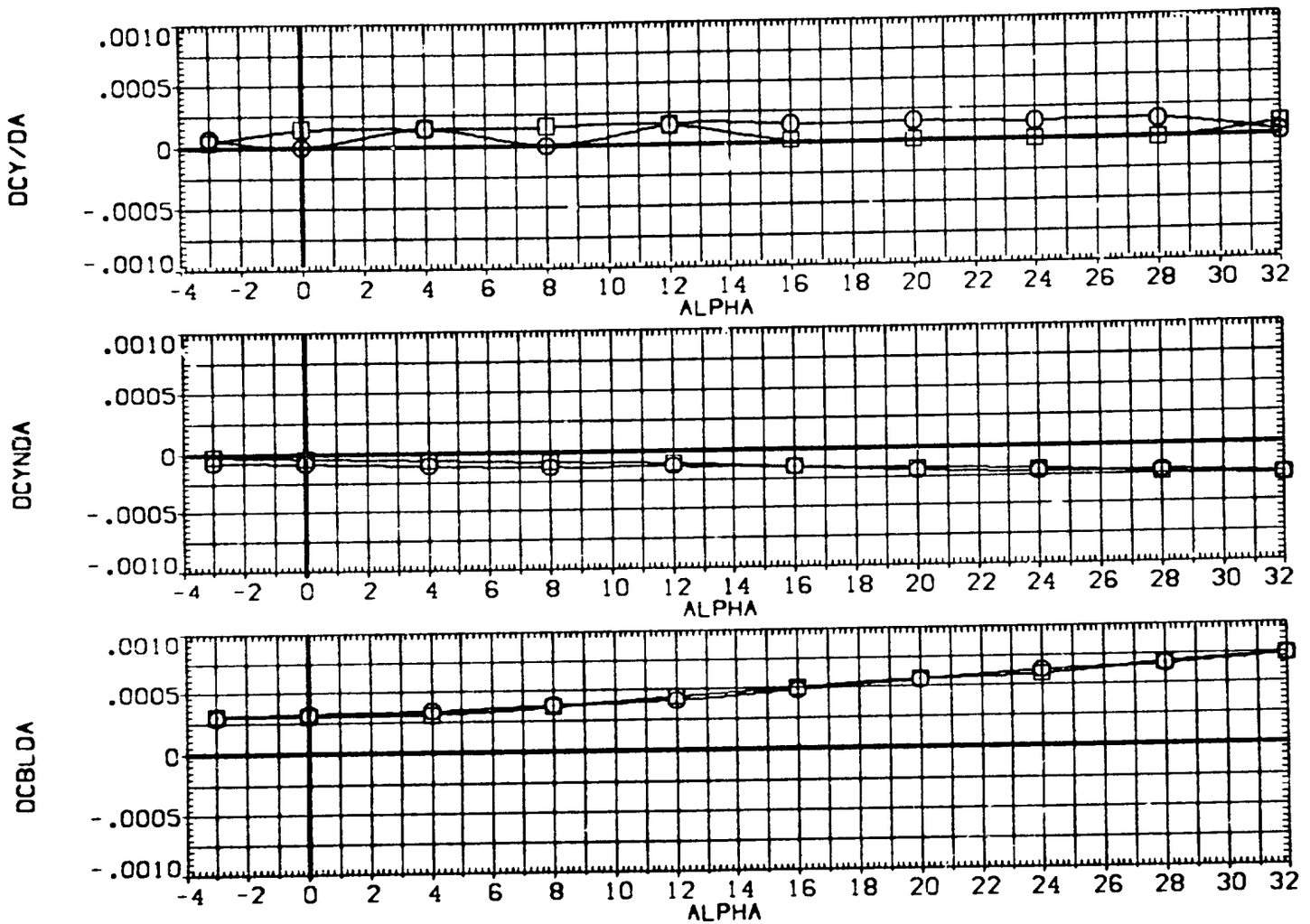


FIGURE 13. OUTBOARD AILERON EFFECTIVENESS WITH INBOARD ELEVONS DEFLECTED

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(B-0016)	○	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	10.000	-20.000	-20.000	-10.000
(B-0017)	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	10.000	-40.000	-40.000	-10.000

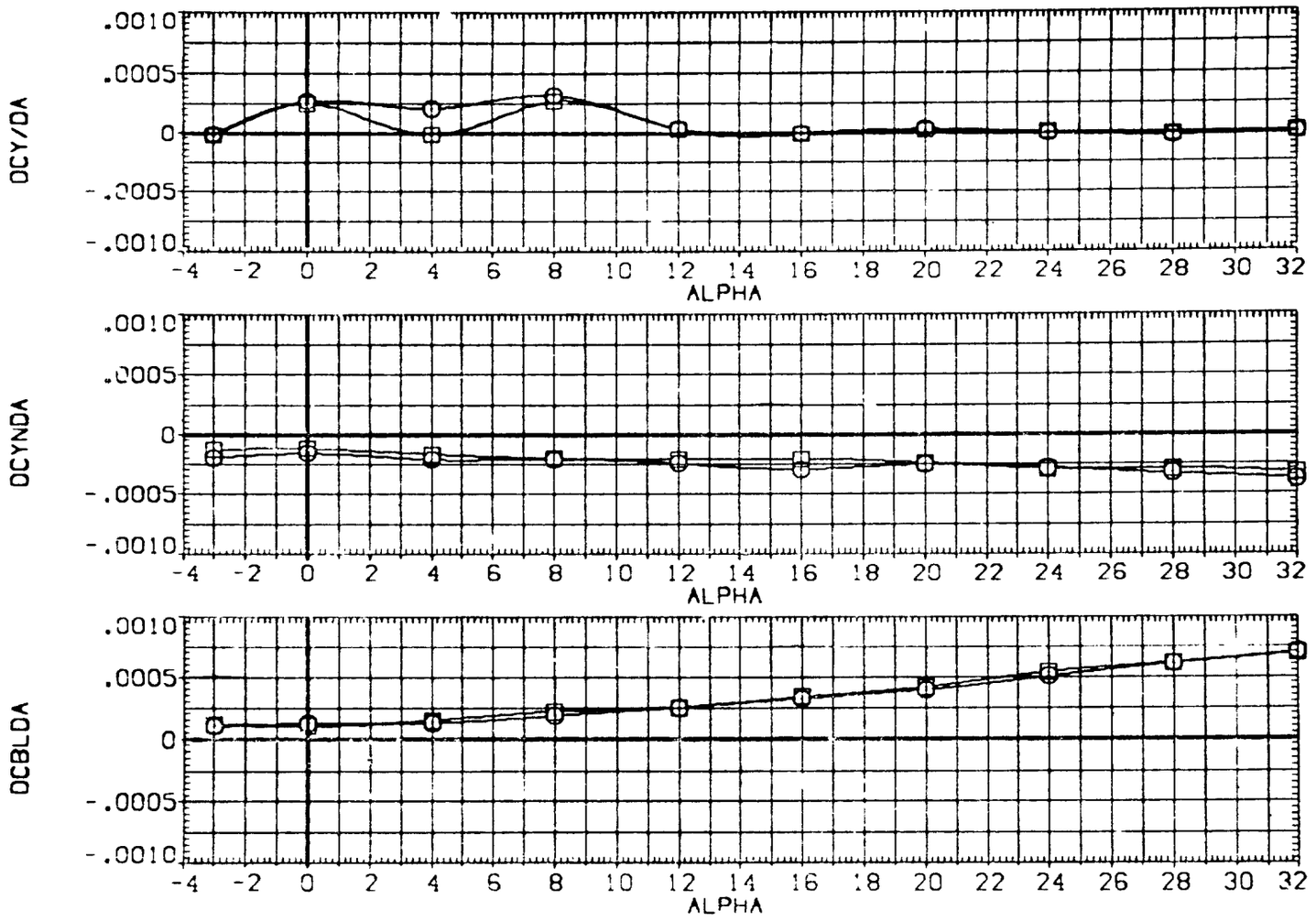


FIGURE 13. OUTBOARD AILERON EFFECTIVENESS WITH INBOARD ELEVONS DEFLECTED

(B)MACH = 4.63

DATA SET SYMBOL		CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(B-J011)	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	.000	-20.000	-20.000
(B-J013)	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	.000	-10.000	-10.000	-20.000

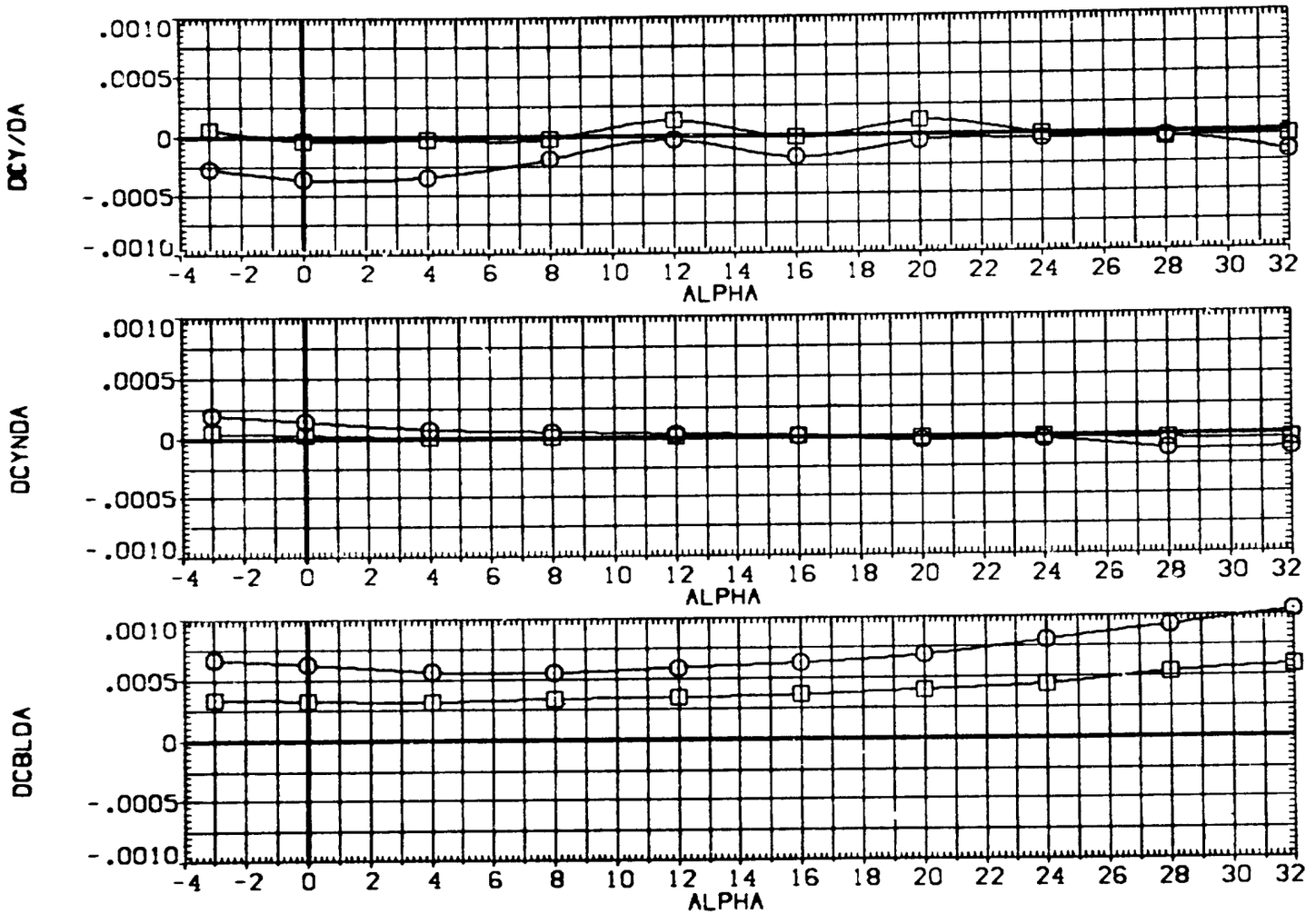


FIGURE 14. COMPARISON OF FULL SPAN AND OUTBOARD ELEVON DEFLECT. FOR ROLL(DE=-10)

(A)MACH = 2.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(3)0011	EA 49 0%T 1101 RI 0898/139 ORB SPLIT ELEVON	.000	.000	-20.000	-20.000
(3)0013	EA 49 0%T 1101 RI 0898/139 ORB SPLIT ELEVON	.000	-10.000	-10.000	-20.000

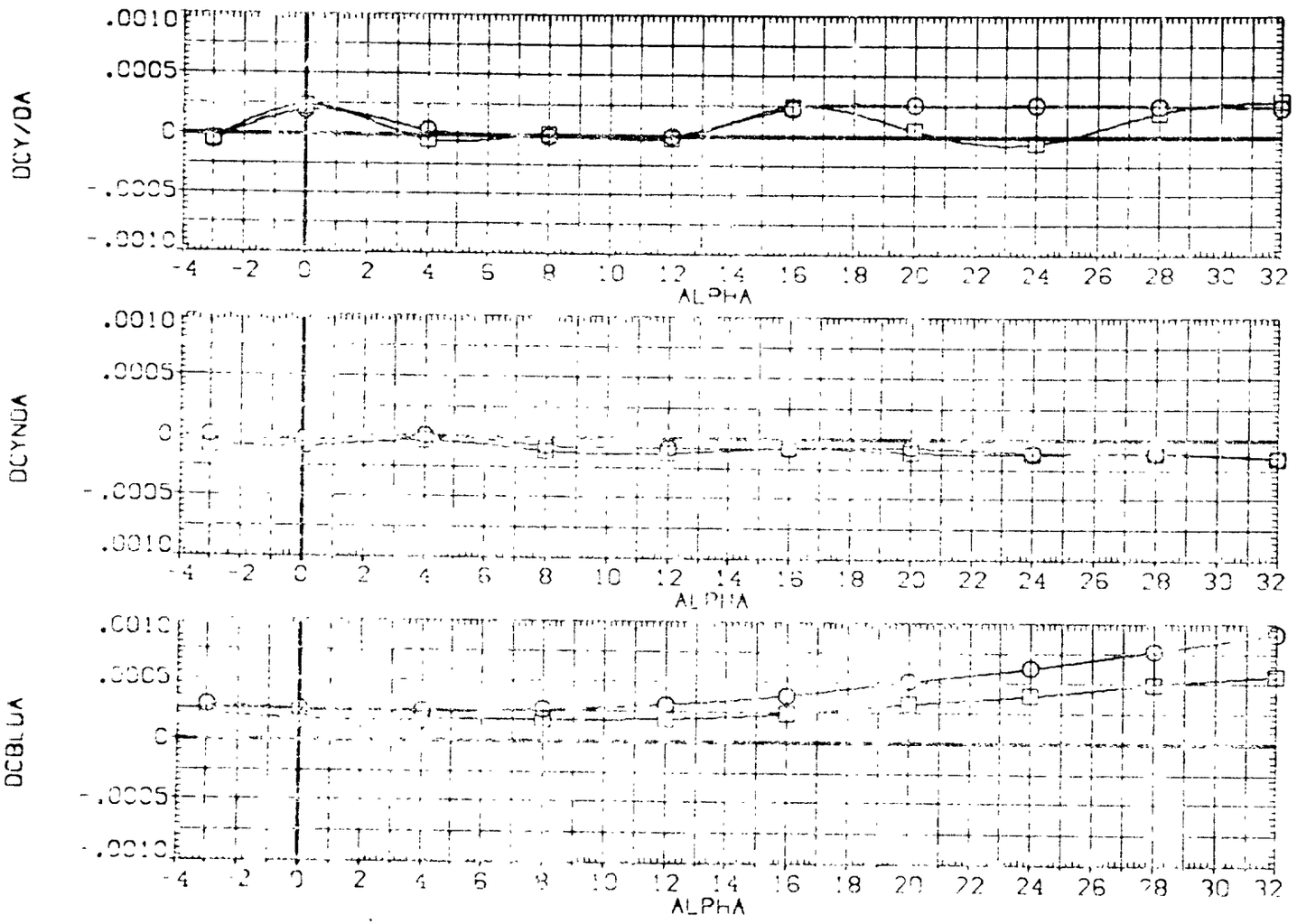


FIGURE 14. COMPARISON OF FULL SPAN AND OUTBOARD ELEVON DEFLECT. FOR ROLL(DE=-10)

(3)MACH = 4.63

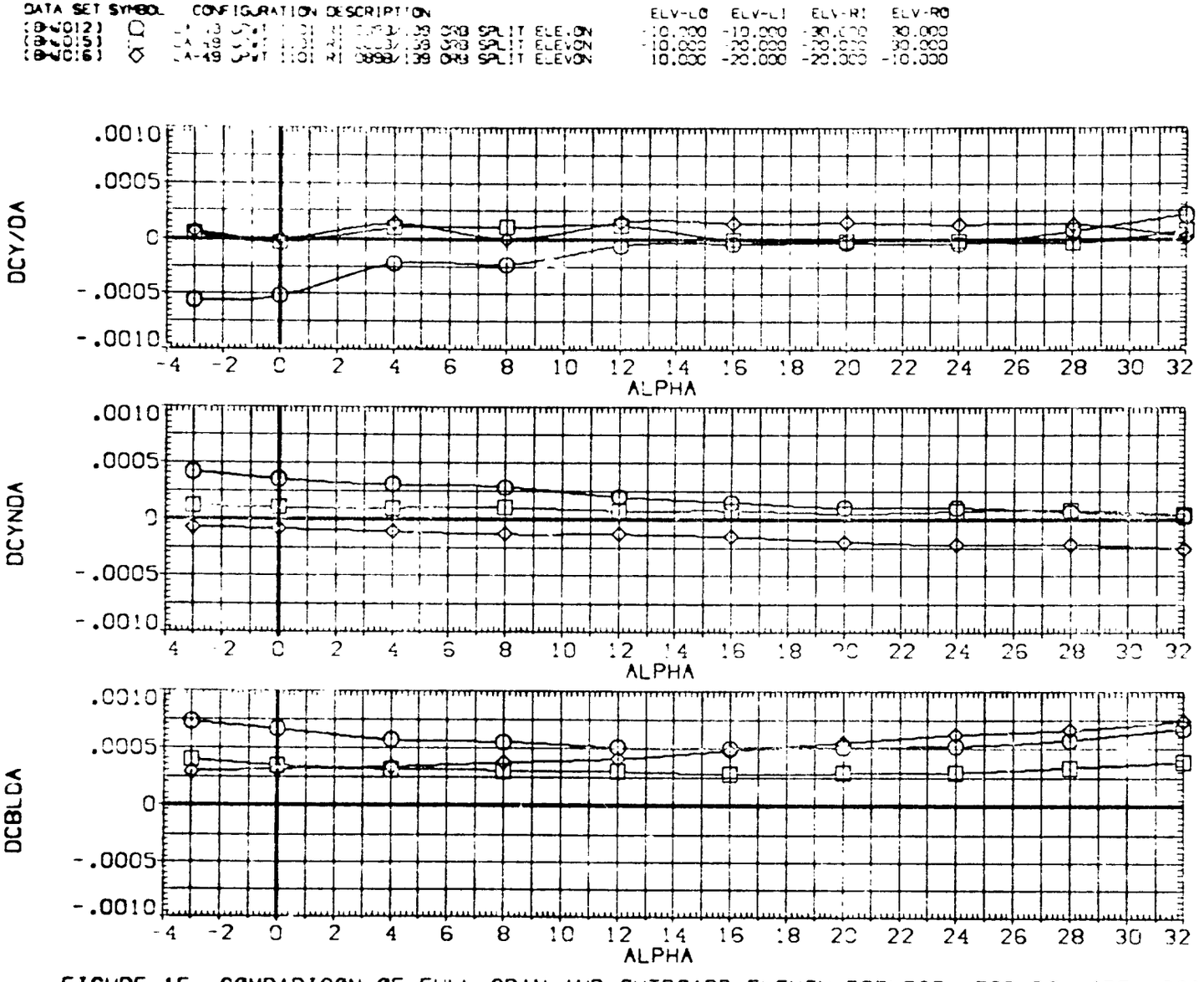


FIGURE 15. COMPARISON OF FULL SPAN AND OUTBOARD ELEVON DEFLECT. FOR ROLL(DE=-20)

(A)MACH = 2.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(9[illegible]012)	□	LA 49 UPWT 1101 RI-0899/139 ORB SPLIT ELEVON	-10.000	-10.000	-30.000	-30.000
(9[illegible]015)	Ω	LA 49 UPWT 1101 RI-0899/139 ORB SPLIT ELEVON	-10.000	-20.000	-20.000	-30.000
(9[illegible]016)	◇	LA 49 UPWT 1101 RI-0899/139 ORB SPLIT ELEVON	10.000	-20.000	-20.000	-10.000

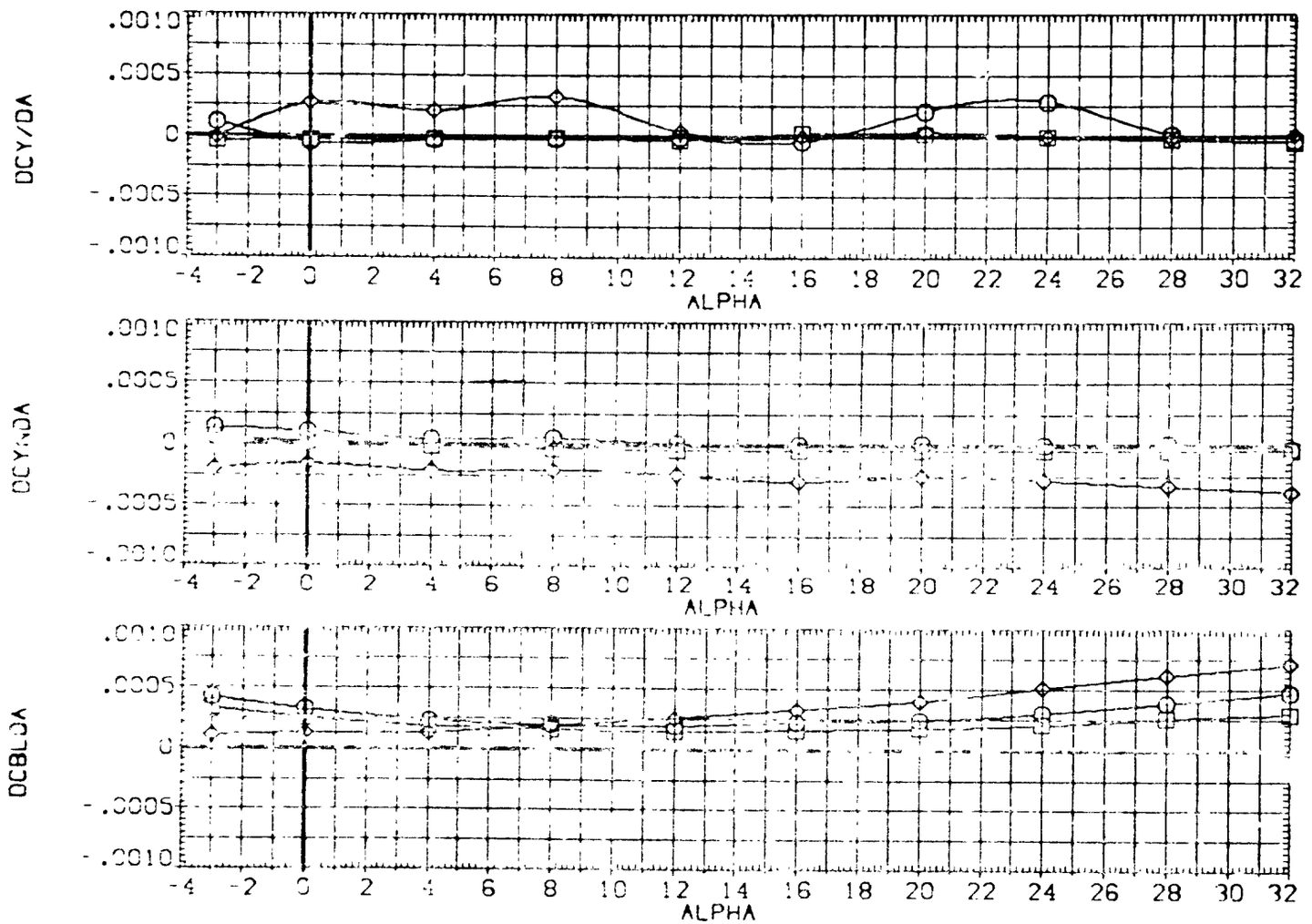


FIGURE 15. COMPARISON OF FULL SPAN AND OUTBOARD ELEVON DEFLECT. FOR ROLL (DE=-20)

(B)MAC- [illegible] 4.63

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-LO	ELV-LI	ELV-RI	ELV-RO
(##0005)	□	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-10.000	-10.000	-10.000	-10.000
(##0006)	○	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-20.000	-20.000	-20.000	-20.000
(##0007)	◇	LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON	-40.000	-40.000	-40.000	-40.000

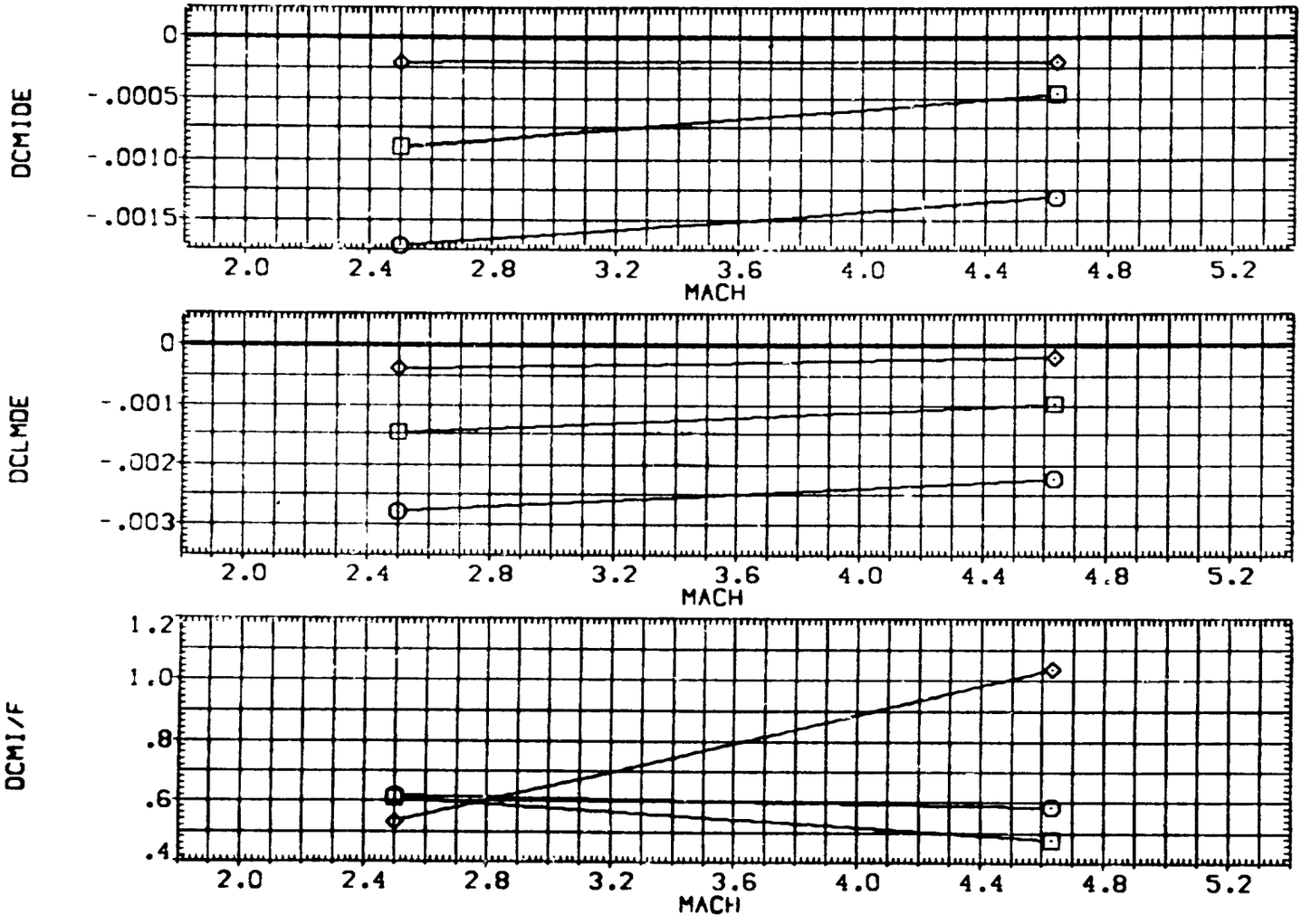


FIGURE 16. COMPARISON OF CONTROL EFFECTIVENESS FOR FULL SPAN AND INBD. ELEVON

(A)ALPHA = 28.00

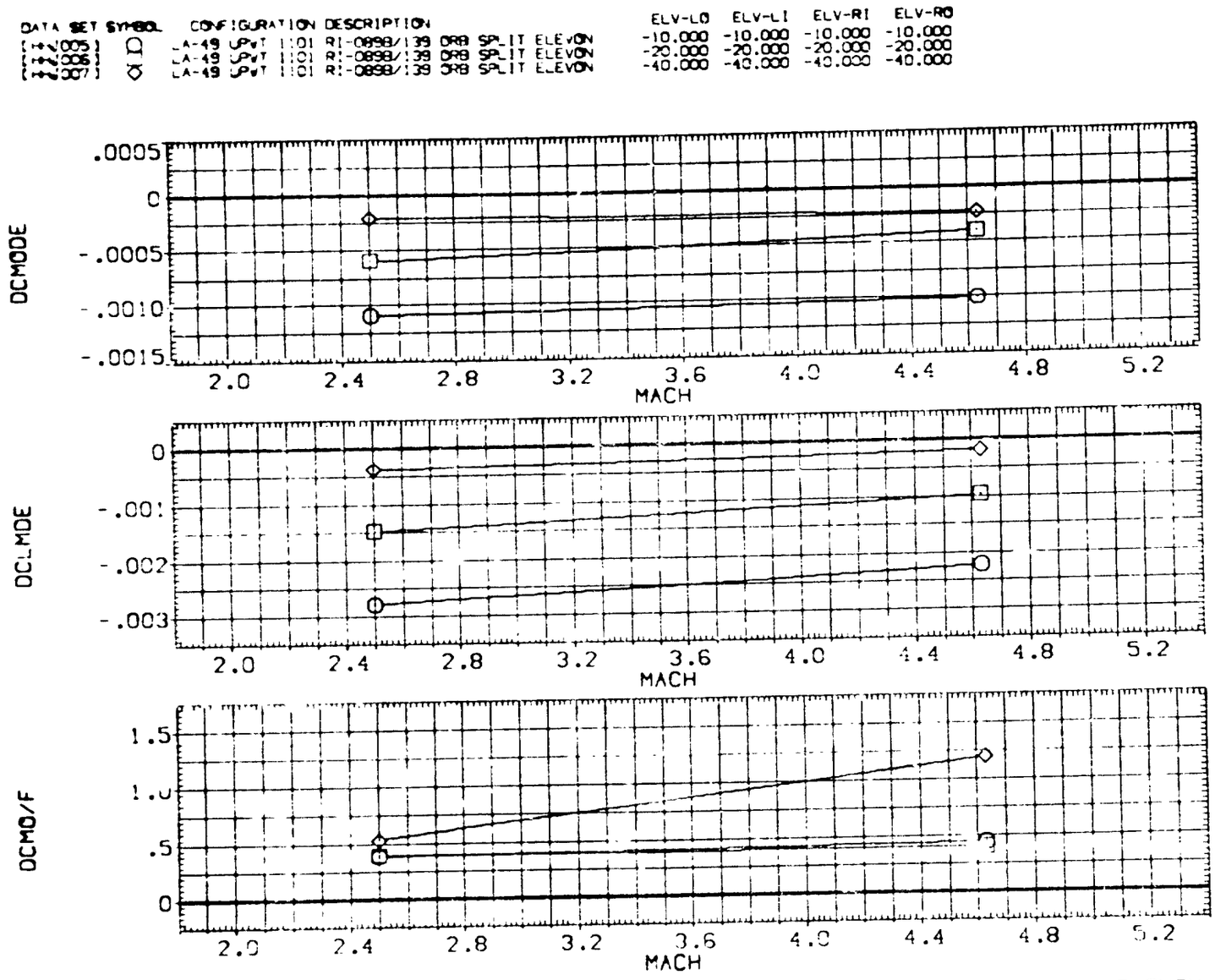


FIGURE 17. COMPARISON OF CONTROL EFFECTIVENESS FOR FULL SPAN AND OUTBD. ELEVON

(A)ALPHA = 28.00

APPENDIX

TABULATED SOURCE DATA

Plotted data tabulation are available from the Chrysler DATAMAN system on request.

LA49 TABULATED SOURCE DATA

LA-49 UPWT 1101 RI-0898/139 CRB SPLIT ELEVON (RHJ001)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	.000
ELV-LI =	.000	ELV-RI =	.000
ELV-RO =	.000	RDFLAP =	.000
SPOSPK =	25.000	AILRON =	.000
ELEVTR =	.000		

RUN NO. 20/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CLN	CY	CL	CD	L/D
2.500	4.172	.000	.13142	.0995	.02352	.00171	.00073	.00031	.12252	.12680	.96623

LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON (RHJ002)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	.000
ELV-LI =	-10.000	ELV-RI =	-10.000
ELV-RO =	.000	BDFLAP =	.000
SPOERK =	25.000	ELEVTR =	-10.000
AILRON =	.000		

RUN NO. 21/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.086	.01868	-.14354	.11883	-.01321	-.00147	.00048	-.00033	-.13471	.12875	-1.04624
2.500	-.008	.01942	-.00948	.11638	-.02344	-.00124	.00026	-.00084	-.00947	.11638	-.08135
2.500	4.036	.02023	.12569	.11443	-.03704	-.00113	-.00019	-.00113	.11832	.12307	.96139
2.500	8.156	.02078	.25952	.11275	-.04798	-.00102	-.00018	-.00170	.24095	.14834	1.62433
2.500	12.240	.02111	.39806	.11030	-.05493	-.00111	-.00018	-.00220	.36563	.19218	1.90247
2.500	16.299	.02117	.54746	.10801	-.06522	-.00119	-.00018	-.00234	.49515	.25731	1.92433
2.500	20.406	.02215	.70504	.10416	-.07216	-.00129	-.00018	-.00300	.62448	.34345	1.81828
2.500	24.593	.02155	.87321	.10126	-.08133	-.00111	.00004	-.00359	.75185	.45549	1.65056
2.500	28.652	.02147	1.04821	.09664	-.09475	-.00129	-.00030	-.00291	.87351	.58741	1.48705
2.500	32.779	.02128	1.23387	.09314	-.11175	-.00156	-.00016	-.00333	.99667	.74632	1.32244

RUN NO. 3/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.544	.03927	-.10167	.09007	-.03599	.00006	.00091	-.00410	-.09586	.09618	-.99674
4.600	-1.574	.04026	-.04026	.08652	-.03475	.00002	.00048	-.00562	-.05782	.08814	-.65599
4.600	.440	.03992	-.02257	.08345	-.03323	-.00004	.00049	-.00472	-.02321	.08327	-.27873
4.600	2.481	.03948	.02268	.08087	-.03369	-.00008	.00047	-.00359	.01915	.08178	.23423
4.600	4.499	.04023	.06811	.07836	-.03276	-.00031	.00046	-.00505	.06176	.08345	.74013
4.600	8.583	.04051	.17272	.07576	-.03400	-.00032	.00045	-.00505	.15770	.09977	1.58067
4.600	12.589	.04027	.28448	.07356	-.03717	.00002	.00003	.00465	.26117	.13575	1.92397
4.600	16.530	.03957	.41414	.07176	-.04081	-.00017	.00044	-.00396	.37490	.19209	1.95164
4.600	20.679	.04047	.56200	.08008	-.04445	-.00001	.00001	.00528	.49752	.27337	1.81991
4.600	24.763	.04084	.71759	.08205	-.05145	-.00019	-.00001	-.00634	.61724	.37508	1.64564
4.600	28.775	.04109	.88291	.08378	-.06036	-.00037	-.00023	-.00705	.73355	.49844	1.47169
4.600	32.854	.04022	1.05924	.08604	-.07322	-.00018	-.00042	-.00480	.84314	.64691	1.30333
4.600	36.927	.04115	1.24630	.08780	-.08677	-.00027	-.00041	-.00745	.94354	.81896	1.15212
4.600	40.962	.04110	1.42959	.08851	-.10309	-.00053	-.00040	-.00749	1.02152	1.00402	1.01743

LA49 TABULATED SOURCE DATA

LA-49 UPWT 1101 RI-0898/139 CRB SPLIT ELEVON (RHJ003)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	.000
ELV-LI =	-20.000	ELV-RI =	-20.000
ELV-RO =	.000	BDFLAP =	.000
SPOERK =	25.000	ELEVTR =	-20.000
AILRON =	.000		

RUN NO. 22/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.043	.02054	-.15578	.12365	-.00292	-.00142	.00023	-.00235	-.14667	.13433	-1.09191
2.500	-.021	.02026	-.02150	.12005	-.01427	-.00144	.00001	-.00139	-.02146	.12006	-.17874
2.500	4.089	.02082	.11671	.11624	-.02857	-.00126	-.00020	-.00166	.10812	.12426	.87013
2.500	8.138	.02155	.24933	.11377	-.03985	-.00114	-.00043	-.00217	.23072	.14792	1.55979
2.500	12.231	.02288	.38835	.11092	-.04954	-.00105	-.00043	-.00412	.35603	.19057	1.86723
2.500	16.276	.02201	.53566	.10875	-.05690	-.00123	-.00042	-.00291	.48372	.25450	1.90072
2.500	20.413	.02259	.69296	.10568	-.06295	-.00142	-.00020	-.00440	.61249	.34070	1.79774
2.500	24.361	.02245	.85974	.10280	-.07101	-.00125	-.00031	-.00424	.73830	.45045	1.63904
2.500	28.686	.02248	1.03240	.09906	-.08152	-.00144	-.00055	-.00370	.85962	.58159	1.47634
2.500	32.740	.02146	1.21020	.09344	-.09663	-.00190	-.00041	-.00200	.98737	.73344	1.34571

RUN NO. 4/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.557	.03974	-.10540	.09149	-.03289	.00005	.00049	-.00421	-.09952	.09785	-1.01704
4.600	-1.588	.03977	-.06390	.08768	-.03065	.00000	.00006	-.00317	-.06145	.09342	-.65763
4.600	.442	.04035	-.02250	.08457	-.03047	-.00005	.00005	-.00474	-.02715	.09439	-.27431
4.600	2.457	.03995	.01891	.08148	-.03008	-.00009	.00005	-.00368	.01540	.08222	.18725
4.600	4.500	.04047	.06123	.07864	-.03011	-.00031	.00004	-.00509	.05182	.08343	.69370
4.600	8.520	.04048	.15613	.07590	-.03129	-.00033	.00003	-.00516	.13505	.09879	1.34172
4.600	12.561	.04076	.25289	.07319	-.03376	-.00017	-.00040	-.00217	.23750	.13545	1.90174
4.600	16.597	.04047	.35130	.07063	-.03533	-.00036	.00001	-.00313	.33132	.19168	1.72716
4.600	20.664	.04054	.45468	.06842	-.03833	-.00021	-.00042	-.00387	.43062	.27059	1.61054
4.600	24.722	.04044	.56340	.06642	-.04326	-.00040	-.00045	-.00410	.53170	.37224	1.42840
4.600	28.797	.04072	.67180	.06378	-.05222	-.00057	-.00066	-.00491	.62352	.49338	1.46667
4.600	32.837	.04031	1.01460	.08612	-.06099	-.00058	-.00086	-.00546	.93100	.63880	1.30088
4.600	36.890	.04094	1.22783	.08819	-.07253	-.00050	-.00086	-.00570	.92906	.80758	1.15041
4.600	40.955	.04199	1.41115	.08802	-.08680	-.00078	-.00085	-.00840	1.00803	.99145	1.01673

LA-49 UPWT 1101 R1-0898/139 ORB SPLIT ELEVON (RHJ004)

PARAMETRIC DATA

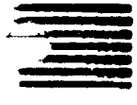
BETA =	.000	ELV-LO =	.000
ELV-LI =	-40.000	ELV-RI =	-40.000
ELV-RO =	.000	BDFLAP =	.000
SPDBRK =	25.000	ELEVTR =	-40.000
AILRON =	.000		

RUN NO. 23/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.072	.02054	-.18667	.13543	.01386	-.00141	.00021	-.00228	-.17658	.14835	-1.19033
2.500	-.004	.02113	-.04824	.13293	.00066	-.00114	-.00001	-.00259	-.04823	.13293	-.36281
2.500	4.092	.02157	.09402	.12613	-.01544	-.00094	-.00022	-.00269	.08478	.13252	.63973
2.500	8.130	.02217	.23058	.12167	-.02887	-.00091	-.00044	-.00302	.21106	.15306	1.37897
2.500	12.224	.02240	.37379	.11688	-.03696	-.00109	-.00044	-.00338	.34056	.19338	1.76111
2.500	16.315	.02152	.52105	.11333	-.04687	-.00127	-.00044	-.00216	.46924	.25514	1.83522
2.500	20.435	.02245	.68082	.11012	-.05454	-.00137	-.00044	-.00354	.59953	.34090	1.75863
2.500	24.518	.02228	.84630	.10710	-.06329	-.00126	-.00045	-.00334	.72555	.44964	1.61723
2.500	28.652	.02161	1.01544	.10370	-.07231	-.00157	-.00034	-.00302	.84138	.57789	1.45597
2.500	32.770	.02200	1.19972	.09940	-.08583	-.00166	-.00043	-.00366	.95498	.73295	1.30292

RUN NO. 5/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.524	.04072	-.11664	.09479	-.02612	-.00015	-.00037	-.00455	-.11059	.10178	-1.08661
4.600	-1.576	.04053	-.07530	.09072	-.02597	-.00002	-.00037	-.00353	-.07277	.09276	-.78457
4.600	.453	.04087	-.03007	.08733	-.02643	-.00007	-.00038	-.00498	-.03076	.08709	-.35322
4.600	2.465	.04043	.01531	.08398	-.02688	-.00029	-.00039	-.00382	.01169	.08456	.13819
4.600	4.494	.03997	.06066	.08060	-.02901	-.00050	-.00039	-.00263	.05416	.08511	.63636
4.600	8.534	.04050	.16715	.07699	-.02920	-.00051	.00002	-.00521	.15388	.10094	1.52439
4.600	12.570	.03980	.28102	.07330	-.03100	-.00018	-.00041	-.00228	.25746	.13660	1.88470
4.600	16.591	.04052	.40652	.07877	-.03329	-.00054	-.00042	-.00420	.36748	.19168	1.91716
4.600	20.636	.04011	.55112	.08187	-.03492	-.00040	-.00043	-.00316	.48691	.27085	1.79767
4.600	24.738	.04058	.70306	.08467	-.03783	-.00060	-.00046	-.00444	.60311	.37111	1.62517
4.600	28.760	.04131	.86050	.08638	-.04616	-.00060	-.00109	-.00531	.71279	.48975	1.45542
4.600	32.826	.04148	1.03721	.08897	-.05351	-.00061	-.00130	-.00581	.82335	.63703	1.29249
4.600	36.901	.04156	1.21673	.09158	-.06370	-.00071	-.00129	-.00617	.91800	.80381	1.14206
4.600	40.956	.04166	1.39242	.09257	-.07463	-.00082	-.00129	-.00660	.99090	.98260	1.00845



LA-49 UPWT 1101 RI-0898/139 TRB SPLIT ELEVON (RHJ005)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	-10.000
ELV-LI =	-10.000	ELV-RI =	-10.000
ELV-RO =	-10.000	BDFLAP =	.000
SPDBRK =	25.000	AILRON =	.000
ELEVTR =	-10.000		

RUN NO. 24/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.060	.02074	-.14981	.11986	-.00658	-.00140	.00001	-.00204	-.14095	.13016	-1.08287
2.500	-.012	.02047	-.01750	.11707	-.01869	-.00151	-.00021	-.00109	-.01748	.11707	-.14929
2.500	4.065	.02108	.11874	.11472	-.03232	-.00124	-.00043	-.00144	.11031	.12285	.89787
2.500	8.133	.02190	.25140	.11243	-.04058	-.00114	-.00065	-.00205	.23297	.14687	1.58620
2.500	12.213	.02319	.39014	.10980	-.04834	-.00113	-.00065	-.00395	.35908	.18985	1.89617
2.500	16.301	.02236	.53900	.10711	-.05684	-.00113	-.00065	-.00281	.48630	.25381	1.91598
2.500	20.419	.02302	.69353	.10336	-.06268	-.00123	-.00043	-.00440	.61389	.33683	1.81182
2.500	24.530	.02230	.85596	.09996	-.07032	-.00124	-.00044	-.00427	.73811	.44673	1.65227
2.500	28.648	.02210	1.03071	.09489	-.08195	-.00153	-.00032	-.00376	.85904	.57742	1.48773
2.500	32.753	.02144	1.21390	.09137	-.09711	-.00151	-.00041	-.00298	.97147	.73359	1.32427

RUN NO. 6/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.540	.04050	-.10151	.09065	-.03212	-.00012	-.00036	-.00397	-.09572	.09674	-.98947
4.600	-1.569	.04018	-.06385	.08662	-.03062	-.00017	-.00037	-.00308	-.06144	.08854	-.69401
4.600	.445	.04072	-.02234	.08374	-.03112	-.00039	-.00037	-.00460	-.02299	.08356	-.27515
4.600	2.479	.04069	.02249	.08118	-.03089	-.00044	-.00080	-.00340	.01935	.08210	.23574
4.600	4.495	.04026	.06830	.07838	-.03064	-.00066	-.00091	-.00226	.06195	.08349	.74199
4.600	8.541	.03931	.16721	.07532	-.02986	-.00068	-.00040	-.00249	.15417	.09932	1.55223
4.600	12.552	.04019	.28109	.07539	-.03099	-.00035	-.00083	-.00216	.25798	.13468	1.91553
4.600	16.605	.04026	.41380	.07680	-.03391	-.00071	-.00084	-.00389	.37171	.19100	1.94612
4.600	20.681	.04044	.55908	.07329	-.03621	-.00074	-.00085	-.00331	.49131	.27022	1.81910
4.600	24.729	.04040	.71206	.06975	-.04032	-.00075	-.00078	-.00316	.62613	.38931	1.60836
4.600	28.770	.04116	.86838	.06217	-.05015	-.00110	-.00100	-.00493	.72164	.48997	1.47283
4.600	32.846	.04128	1.03491	.05444	-.06094	-.00109	-.00129	-.00531	.83206	.63768	1.30481
4.600	36.881	.04131	1.22843	.08470	-.07177	-.00137	-.00129	-.00553	.93117	.80581	1.15557
4.600	40.981	.04224	1.41165	.08462	-.08741	-.00163	-.00128	-.00818	1.01020	.98966	1.02076

LA-49 UPWT 1101 RI-0898/139 CRB SPLIT ELEVON (RHJ006)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	-20.000
ELV-LI =	-20.000	ELV-RI =	-20.000
ELV-RO =	-20.000	BDFLAP =	.000
SPDBRK =	25.000	AILRON =	.000
ELEVTR =	-20.000		

RUN NO. 25/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.052	.02071	-.17809	.12766	.01138	-.00167	-.00002	-.00192	-.16862	.13993	-1.20506
2.500	-.018	.02038	-.04184	.12272	-.00108	-.00150	-.00024	-.00089	-.04180	.12273	-.34058
2.500	4.060	.02225	.09842	.11766	-.01611	-.00131	-.00068	-.00245	.08984	.12434	.72259
2.500	8.134	.02297	.23314	.11406	-.02658	-.00129	-.00091	-.00292	.21461	.14597	1.47018
2.500	12.235	.02293	.37010	.11091	-.03404	-.00128	-.00068	-.00352	.33919	.18683	1.81016
2.500	16.317	.02216	.51568	.10816	-.04140	-.00138	-.00068	-.00245	.46452	.24869	1.86788
2.500	20.421	.02283	.67100	.10487	-.04686	-.00139	-.00045	-.00405	.59224	.33240	1.78170
2.500	24.537	.02283	.83314	.10111	-.05159	-.00141	-.00047	-.00408	.71591	.43797	1.63460
2.500	28.652	.02256	1.00272	.09635	-.06066	-.00161	-.00059	-.00373	.83374	.56534	1.47475
2.500	32.750	.02256	1.19320	.09168	-.07277	-.00198	-.00045	-.00439	.94551	.71719	1.31836

RUN NO. 7/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.544	.04114	-.11454	.09373	-.02402	-.00050	-.00080	-.00450	-.11033	.10075	-1.09507
4.600	-1.576	.04076	-.07510	.08991	-.02319	-.00021	-.00080	-.00353	-.07260	.09194	-.78963
4.600	.470	.04031	-.02977	.08622	-.02432	-.00042	-.00081	-.00234	-.03047	.08597	-.35446
4.600	2.475	.04086	.01550	.08288	-.02410	-.00047	-.00081	-.00381	.01191	.08347	.14266
4.600	4.501	.04043	.06079	.08006	-.02387	-.00052	-.00082	-.00269	.05432	.08458	.64223
4.600	8.516	.04045	.15971	.07650	-.02445	-.00070	-.00083	-.00278	.14662	.09931	1.47635
4.600	12.555	.02143	.27358	.07653	-.02557	-.00037	-.00126	-.00245	.25040	.13417	1.86635
4.600	16.596	.02120	.39959	.07797	-.02579	-.00075	-.00128	-.00186	.36068	.18886	1.90977
4.600	20.702	.02194	.53999	.08042	-.02540	-.00061	-.00129	-.00358	.47569	.25612	1.85737
4.600	24.723	.02234	.68811	.08223	-.02837	-.00080	-.00132	-.00498	.59065	.36248	1.62948
4.600	28.769	.02169	.84972	.08364	-.03388	-.00099	-.00154	-.00328	.70458	.48227	1.46096
4.600	32.857	.02194	1.01870	.08533	-.04063	-.00100	-.00174	-.00399	.80933	.62452	1.29593
4.600	36.890	.02300	1.19842	.08660	-.05014	-.00128	-.00174	-.00694	.90650	.78865	1.14944
4.600	40.969	.02307	1.37796	.08643	-.06034	-.00138	-.00174	-.00729	.98379	.96871	1.01557

LA-49 UPWT 1101 RI-0698/139 CRB SPLIT ELEVON (RHJ007)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	-40.000
ELV-LI =	-40.000	ELV-RI =	-40.000
ELV-RO =	-40.000	BDFLAP =	.000
SPDBRK =	25.000	AILRON =	.000
ELEVTR =	-40.000		

RUN NO. 26/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.073	.02058	-.21508	.14402	.03137	-.00158	.00018	-.00226	-.20829	.15922	-1.30823
2.500	.002	.02160	-.07267	.13898	.01713	-.00102	.00019	-.00381	-.07267	.13898	-.52291
2.500	4.054	.02145	.06766	.13057	-.00009	-.00110	-.00025	-.00245	.05826	.13503	.43143
2.500	8.138	.02268	.20452	.12693	-.01166	-.00108	-.00024	-.00429	.18449	.15462	1.19318
2.500	12.234	.02196	.34746	.12072	-.01903	-.00097	-.00024	-.00329	.31399	.19161	1.63871
2.500	16.308	.02214	.49290	.11664	-.02750	-.00103	-.00024	-.00360	.44032	.25036	1.75876
2.500	20.430	.02220	.64928	.11215	-.03409	-.00107	-.00024	-.00372	.56835	.33140	1.71501
2.500	24.534	.02351	.81233	.10871	-.03872	-.00147	-.00049	-.00501	.69395	.43621	1.59063
2.500	28.066	.02239	.97653	.10503	-.04519	-.00149	-.00061	-.00342	.80909	.56203	1.43957
2.500	32.755	.02160	1.15439	.10109	-.05559	-.00149	-.00047	-.00294	.91613	.70960	1.29105

RUN NO. 9/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.541	.02568	-.14329	.10876	-.00850	-.00040	-.00548	-.00225	-.13650	.11740	-1.16097
4.600	-1.583	.02131	-.09766	.10326	-.00836	-.00011	-.00125	-.00193	-.09477	.10592	-.89473
4.600	.467	.02180	-.05245	.09761	-.01155	-.00031	-.00125	-.00327	-.05324	.09718	-.54784
4.600	2.463	.02134	-.00712	.09319	-.01337	-.00052	-.00125	-.00206	-.01112	.09279	-.11982
4.600	4.468	.02183	.04178	.09074	-.01519	-.00033	.00126	-.00339	.03474	.09172	.37878
4.600	8.538	.02181	.14450	.08343	-.01640	-.00057	-.00127	-.00337	.13051	.10395	1.25546
4.600	12.568	.02165	.26225	.08264	-.01816	-.00024	-.00127	-.00300	.23799	.13771	1.72813
4.600	16.619	.02141	.38822	.08342	-.01906	-.00061	-.00129	-.00239	.34812	.19106	1.82210
4.600	20.670	.02106	.52879	.08634	-.01866	-.00064	-.00130	-.00149	.46427	.26744	1.73598
4.600	24.724	.02160	.67687	.08995	-.01957	-.00067	-.00133	-.00296	.57762	.36390	1.58733
4.600	28.771	.02201	.83077	.09092	-.02449	-.00086	-.00155	-.00409	.68445	.47956	1.42727
4.600	32.860	.02226	1.00375	.09294	-.02944	-.00088	-.00176	-.00479	.79272	.62269	1.27307
4.600	36.925	.02246	1.17576	.09529	-.03460	-.00100	-.00176	-.00547	.88267	.78255	1.12794
4.600	40.966	.02300	1.35153	.09660	-.04278	-.00111	-.00219	-.00591	.95721	.95003	.99810

LA-49 UPWT 1101 RI-0898/139 CRB SPLIT ELEVON (RHJ008)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	-10.000
ELV-LI =	.000	ELV-RI =	.000
ELV-RO =	-10.000	BDFLAP =	.000
SPDBRK =	25.000	ELEVTR =	-10.000
AILRON =	.000		

RUN NO. 27/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.089	.01970	-.13744	.11839	-.01573	-.00155	-.00020	.00004	-.12870	.12784	-1.00666
2.500	-.023	.02139	-.00542	.11789	-.02786	-.00148	-.00043	-.00185	-.00537	.11789	-.04559
2.500	4.062	.02242	.13073	.11637	-.04070	-.00130	-.00087	-.00218	.12216	.12534	.97466
2.500	8.133	.02277	.26532	.11442	-.05006	-.00110	-.00087	-.00274	.24646	.15081	1.63432
2.500	12.251	.02308	.40438	.11191	-.05826	-.00100	-.00087	-.00324	.37143	.19517	1.90312
2.500	16.314	.02316	.55172	.10971	-.06891	-.00127	-.00086	-.00340	.49869	.26028	1.91598
2.500	20.428	.02276	.70958	.10437	-.07664	-.00128	-.00063	-.00347	.62852	.34547	1.81933
2.500	24.522	.02349	.87736	.10287	-.08727	-.00109	-.00064	-.00459	.75553	.45774	1.65056
2.500	28.633	.02253	1.05405	.09831	-.10211	-.00136	-.00052	-.00387	.87804	.59139	1.48472
2.500	32.749	.02274	1.24166	.09543	-.11874	-.00134	-.00060	-.00425	.99266	.75196	1.32011

RUN NO. 9/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.524	.02152	-.09785	.09144	-.03482	-.00011	-.00078	-.00371	-.09204	.09728	-.94616
4.600	-1.561	.02119	-.06015	.08763	-.03263	-.00017	-.00079	-.00284	-.05774	.08924	-.64704
4.600	.464	.02118	-.01880	.08481	-.03314	-.00021	-.00121	-.00171	-.01949	.08465	-.23025
4.600	2.473	.02177	.02281	.08217	-.03232	-.00044	-.00123	-.00328	.01924	.08308	.23162
4.600	4.491	.02131	.06815	.07963	-.03278	-.00048	-.00123	-.00213	.06171	.08472	.72834
4.600	8.524	.02129	.17452	.07673	-.03322	-.00050	-.00124	-.00205	.16122	.10175	1.58444
4.600	12.547	.02154	.28831	.07705	-.03640	-.00016	-.00187	-.00166	.26468	.13784	1.92019
4.600	16.630	.02376	.41906	.07887	-.04076	-.00034	-.00549	-.00277	.37801	.19521	1.93639
4.600	20.667	.02170	.56569	.08151	-.04643	-.00018	-.00168	-.00219	.50052	.27591	1.81404
4.600	24.729	.02208	.72118	.08379	-.05345	-.00019	-.00170	-.00327	.62000	.37780	1.64106
4.600	28.786	.02230	.88620	.08628	-.06512	-.00018	-.00191	-.00391	.73515	.50235	1.46341
4.600	32.831	.02235	1.06634	.08887	-.07932	.00001	-.00210	-.00412	.84784	.65280	1.29876
4.600	36.906	.02229	1.25336	.09119	-.09423	-.00008	-.00209	-.00413	.94745	.82557	1.14764
4.600	40.958	.02317	1.44028	.09244	-.11190	-.00015	-.00208	-.00666	1.02709	1.01391	1.01300

LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON (RHJ009)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	-20.000
ELV-LI =	.000	ELV-RI =	.000
ELV-RO =	-20.000	BDFLAP =	.000
SPOBRK =	25.000	ELEVTR =	-20.000
AILRON =	.000		

RUN NO. 28/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.073	.02004	-.14747	.12122	-.00913	-.00168	-.00022	-.00042	-.13849	.13138	-1.05408
2.500	-.012	.02170	-.01348	.11961	-.02126	-.00151	-.00044	-.00227	-.01346	.11961	-.11249
2.500	4.052	.02173	.12278	.11765	-.03483	-.00142	-.00088	-.00115	.11416	.12603	.90578
2.500	8.143	.02207	.25703	.11540	-.04491	-.00112	-.00088	-.00171	.23809	.15064	1.58051
2.500	12.222	.02335	.39634	.11269	-.05274	-.00121	-.00088	-.00360	.36350	.19404	1.87331
2.500	16.314	.02253	.54124	.11028	-.06267	-.00120	-.00087	-.00246	.48847	.25788	1.89420
2.500	20.406	.02308	.70082	.10505	-.07053	-.00149	-.00064	-.00392	.62021	.34282	1.80915
2.500	24.533	.02241	.86894	.10337	-.08095	-.00130	-.00042	-.00360	.74740	.45498	1.64272
2.500	28.631	.02296	1.04134	.09874	-.09363	-.00139	-.00053	-.00445	.86670	.58563	1.47993
2.500	32.754	.02320	1.22753	.09608	-.11033	-.00147	-.00062	-.00487	.98037	.74494	1.31603

RUN NO. 10/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.547	.02207	-.10921	.09361	-.03086	-.00048	-.00121	-.00402	-.10321	.10018	-1.03020
4.600	-1.567	.02170	-.06759	.08893	-.02861	-.00053	-.00122	-.00306	-.06513	.09075	-.71773
4.600	.464	.02127	-.02222	.08582	-.02839	-.00058	-.00123	-.00193	-.02292	.08564	-.26762
4.600	2.461	.02087	.01923	.08289	-.02885	-.00062	-.00123	-.00087	.01565	.08364	.18714
4.600	4.490	.02141	.06461	.08021	-.02867	-.00067	-.00124	-.00235	.05813	.08502	.68374
4.600	8.526	.02141	.16744	.07716	-.02922	-.00069	-.00125	-.00236	.15415	.10114	1.52415
4.600	12.548	.02165	.28101	.07734	-.03303	-.00052	-.00167	-.00192	.25749	.13655	1.88572
4.600	16.623	.02091	.41449	.07899	-.03660	-.00071	-.00126	-.00113	.37457	.19426	1.92812
4.600	20.663	.02143	.55267	.08153	-.04098	-.00072	-.00127	-.00258	.49396	.27343	1.80652
4.600	24.706	.02225	.71155	.08400	-.04812	-.00073	-.00171	-.00368	.61132	.37372	1.63577
4.600	28.781	.02244	.88092	.08647	-.05837	-.00090	-.00193	-.00425	.73046	.49992	1.46115
4.600	32.851	.02254	1.05771	.08876	-.07056	-.00089	-.00212	-.00459	.84041	.64833	1.29628
4.600	36.891	.02253	1.23906	.09069	-.08402	-.00098	-.00211	-.00474	.93653	.81633	1.14725
4.600	40.972	.02245	1.42602	.09163	-.10031	-.00106	-.00210	-.00470	1.01661	1.00421	1.01234

LA-49 UPWT 1101 RI-0698/139 ORB SPLIT ELEVON (RHJ010)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	-40.000
ELV-LI =	.000	ELV-RI =	.000
ELV-RO =	-40.000	BDFLAP =	.000
SPDBRK =	25.000	ELEVTR =	-40.000
AILRON =	.000		

RUN NO. 29/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.062	.01994	-.16812	.13038	.00287	-.00126	.00022	-.00146	-.15846	.14196	-1.11625
2.500	-.013	.02186	-.02992	.12799	-.01141	-.00127	-.00022	-.00308	-.02989	.12760	-.23425
2.500	4.050	.02146	.10821	.12425	-.02535	-.00090	-.00044	-.00197	.09916	.13158	.75362
2.500	8.134	.02177	.24285	.12070	-.03660	-.00069	-.00043	-.00248	.22333	.15385	1.45158
2.500	12.237	.02299	.38388	.11679	-.04587	-.00068	-.00042	-.00429	.35041	.19551	1.79229
2.500	16.324	.02209	.53346	.11375	-.05578	-.00076	-.00042	-.00303	.47999	.25909	1.85259
2.500	20.410	.02308	.68905	.10821	-.06347	-.00105	-.00042	-.00450	.60806	.34171	1.77946
2.500	24.530	.02337	.85442	.10662	-.07400	-.00105	-.00020	-.00557	.73667	.45339	1.62479
2.500	28.613	.02196	1.03210	.10131	-.08676	-.00123	-.00031	-.00360	.85753	.58320	1.47039
2.500	32.732	.02326	1.21547	.09968	-.10271	-.00103	-.00040	-.00554	.96856	.74107	1.30697

RUN NO. 11/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.528	.02102	-.12401	.10423	-.01864	-.00019	-.00081	-.00231	-.11736	.11166	-1.05109
4.600	-1.568	.02052	-.08271	.09922	-.01850	-.00024	-.00081	-.00128	-.07996	.10145	-.78819
4.600	.467	.02154	-.03746	.09398	-.02030	-.00027	-.00124	-.00260	-.03822	.09368	-.40801
4.600	2.479	.02109	.00793	.08981	-.02075	-.00049	-.00124	-.00144	.00404	.09007	.04481
4.600	4.498	.02159	.05709	.08632	-.02189	-.00053	-.00125	-.00278	.05014	.09053	.55385
4.600	8.517	.02158	.19609	.08136	-.02454	-.00071	-.00126	-.00280	.14231	.10358	1.37394
4.600	12.568	.02178	.34775	.07680	-.02832	-.00037	-.00168	-.00219	.25352	.13931	1.81985
4.600	16.589	.02104	.48773	.07199	-.03263	-.00073	-.00127	-.00145	.36735	.19499	1.88392
4.600	20.667	.02106	.63197	.06648	-.03702	-.00057	-.00170	-.00285	.48663	.27386	1.77696
4.600	24.724	.02035	.78791	.06207	-.04334	-.00075	-.00172	-.00393	.60661	.37517	1.61689
4.600	28.759	.02264	.96952	.05960	-.05232	-.00075	-.00193	-.00476	.71915	.49690	1.44727
4.600	32.855	.02173	1.09017	.05215	-.06445	-.00074	-.00213	-.00240	.83220	.64714	1.28597
4.600	36.895	.02270	1.23375	.04508	-.07807	-.00084	-.00212	-.00516	.92959	.81672	1.13819
4.600	40.970	.02263	1.41839	.04643	-.09354	-.00075	-.00211	-.00516	1.00773	1.00280	1.00492

LA-49 UPWT 1101 R1-0898/139 ORB SPLIT ELEVON (RHJ011)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	.000
ELV-LI =	.000	ELV-RI =	-20.000
ELV-RO =	-20.000	BDFLAP =	.000
SPDBRK =	25.000	AILRON =	10.000
ELEVTR =	-10.000		

RUN NO. 30/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.062	.01951	-.15205	.12271	-.00535	.00527	.00211	-.00444	-.14298	.13317	-1.07365
2.500	-.014	[illegible]	-.01755	.11627	[illegible]	.00466	[illegible]	-.00470	-.01752	.12027	-.14564
2.500	4.057	[illegible]	.11888	[illegible]	[illegible]	[illegible]	[illegible]	-.00488	.11026	.12564	.87762
2.500	8.145	[illegible]	.25550	.11813	[illegible]	.00433	[illegible]	-.00392	.23463	.14989	1.56539
2.500	12.239	[illegible]	.39444	[illegible]	[illegible]	[illegible]	[illegible]	-.00438	.36166	.19727	1.83147
2.500	[illegible]	[illegible]	.54120	[illegible]	[illegible]	[illegible]	[illegible]	-.00497	[illegible]	.25746	1.81770
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-.00465	[illegible]	.34190	1.80096
2.500	24.[illegible]	[illegible]	.86356	[illegible]	[illegible]	[illegible]	[illegible]	-.00470	.74292	.45236	1.61010
2.500	28.643	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-.00400	[illegible]	.58557	1.47790
2.500	32.777	.01995	1.20262	[illegible]	[illegible]	[illegible]	[illegible]	-.00503	.97655	.74190	1.31546

RUN NO. 12/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	3.557	.02134	-.10780	.09276	-.03114	.00283	-.00035	-.00440	-.10163	.09926	-1.02396
4.600	-1.584	[illegible]	-.06575	.08993	-.02056	.00243	[illegible]	-.00339	-.06327	.09071	-.69746
4.600	.444	[illegible]	-.02406	.08555	-.02034	.00203	[illegible]	-.00224	-.02472	.08536	-.28955
4.600	2.488	[illegible]	.02144	.08275	-.02909	.00181	[illegible]	-.00109	.01798	.08358	.21364
[illegible]	4.478	[illegible]	[illegible]	[illegible]	[illegible]	.00175	[illegible]	-.00255	[illegible]	[illegible]	[illegible]
4.600	8.499	.02144	.17938	[illegible]	-.03082	.00193	-.00123	-.00249	.15615	.10110	1.54454
4.600	12.606	.02170	.28689	.07736	-.03261	.00278	[illegible]	-.00211	.23509	.13811	1.90495
4.600	16.[illegible]	.02145	.41256	[illegible]	[illegible]	.00326	[illegible]	-.00151	.37259	.17347	1.92581
4.600	20.643	[illegible]	.56139	.08197	-.04018	.00449	-.00167	-.00054	.49140	.27272	1.80185
4.600	24.759	.02178	.71473	.08417	-.04199	.00509	-.00211	-.00165	.61378	.37576	1.63342
4.600	28.794	.02219	.87930	.08642	-.05563	.00691	-.00231	-.00253	.72895	.49926	1.46006
4.600	32.853	.02278	1.05514	.09473	-.06638	.00830	-.00293	-.00307	.83826	.64093	1.20373
4.600	36.921	.02294	1.20794	.09649	-.07961	.00943	-.00292	-.00342	.93525	.81593	1.14623
4.600	40.035	.02427	1.[illegible]27	.09170	-.09474	.01073	-.00333	-.00627	1.01182	1.00091	1.01090

LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON (RHJ012)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	-10.000
ELV-LI =	-10.000	ELV-RI =	-30.000
ELV-RO =	-30.000	BDFLAP =	.000
SPOERK =	25.000	AILRON =	10.000
ELEVTR =	-20.000		

RUN NO. 31/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.044	.01626	-.17268	.12861	.00815	.00569	.00439	.00728	-.16318	.14047	-1.16171
2.500	-.015	.01755	-.03790	.12493	-.00427	.00511	.00325	-.00609	-.03788	.12494	-.30317
2.500	4.067	.01823	.10305	.12078	-.01882	.00430	.00234	-.00470	.09423	.12777	.73751
2.500	8.133	.01939	.23586	.11645	-.02893	.00418	.00188	-.00520	.21701	.14865	1.45986
2.500	12.234	.01985	.37726	.11317	-.03740	.00372	.00119	-.00407	.34471	.19055	1.80907
2.500	16.327	.01988	.52298	.11016	-.04553	.00363	.00073	-.00292	.47096	.25268	1.86382
2.500	20.422	.02132	.66036	.10627	-.05172	.00371	.00050	-.00442	.60051	.33699	1.78202
2.500	24.534	.02133	.84211	.10277	-.05756	.00379	.00048	-.00446	.72341	.44316	1.63239
2.500	28.623	.02096	1.01104	.09817	-.06705	.00426	-.00009	-.00274	.84046	.57051	1.47318
2.500	32.765	.02042	1.19474	.09408	-.08032	.00501	-.00018	-.00202	.95374	.72570	1.31423

RUN NO. 13/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.944	.01763	-.11937	.09609	-.02243	.00383	.00049	-.00262	-.11320	.10328	-1.09603
4.600	-1.956	.02042	-.03777	.09199	-.02154	.00343	.00048	-.00419	-.07501	.09409	-.79723
4.600	.044	.02134	.04779	.08779	-.02262	.00269	.00065	-.00297	-.03252	.08753	-.37148
4.600	2.057	.02179	.13004	.08443	-.02308	.00213	-.00038	-.00429	.00631	.08478	.07441
4.600	4.077	.02181	.21439	.08134	-.02346	.00174	-.00038	-.00302	.05285	.08573	.61653
4.600	8.109	.02283	.39472	.07744	-.02470	.00120	-.00045	-.00308	.14548	.10012	1.45306
4.600	12.137	.02151	.57277	.07343	-.02511	.00153	-.00126	-.00258	.24931	.13500	1.84668
4.600	16.178	.02109	.75375	.07039	-.02537	.00151	-.00127	-.00214	.35973	.19018	1.90149
4.600	20.212	.02140	.93418	.06817	-.02702	.00193	-.00129	-.00112	.47945	.25777	1.79053
4.600	24.247	.02139	1.10482	.06348	-.03000	.00233	-.00130	-.00250	.59626	.36636	1.62753
4.600	28.297	.02176	1.28601	.06483	-.03630	.00301	-.00152	-.00352	.70928	.48669	1.45737
4.600	32.671	.02238	1.48940	.06712	-.04517	.00388	-.00214	-.00411	.81647	.63133	1.29325
4.600	36.938	.02251	1.21004	.06878	-.05417	.00447	-.00214	-.00463	.91381	.79813	1.14494
4.600	40.961	.02263	1.38693	.06876	-.06577	.00541	-.00213	-.00510	.98883	.97657	1.01256

LA-49 UPWT 1101 HI-GR98/139 ORB SPLIT ELEVON (RHJ013)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	.000
ELV-LI =	-10.000	ELV-RI =	-10.000
ELV-RO =	-20.000	BDFLAP =	.000
SPDBRK =	25.000	ELEVTR =	-10.000
AILRON =	10.000		

[illegible] 32 C

MACH	ALPHA	[illegible]	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.13196	-1.06867
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-.14859
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.95544
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

MACH	ALPHA	[illegible]	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.72746	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.64437	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-.00605	.92977	[illegible]	1.15176
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.00590	[illegible]	[illegible]	1.00753	.98742	1.02036

LA-49 UPWT 1101 RI-0898/139 ORB SPLIT ELEVON (RHJ014)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	.000
ELV-LI =	-20.000	ELV-RI =	-20.000
ELV-RO =	-40.000	BDFLAP =	.000
SPOBRK =	25.000	ELEVTR =	-20.000
AILRON =	20.000		

RUN NO. 33/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	4.184	.00527	-.17508	.13048	.01069	.00633	.00278	-.00154	-.16540	.14254	-1.16035
2.500	[illegible]	[illegible]	-.03800	.12561	-.00239	.00119	.00187	-.00168	-.03797	.12561	-.30229
2.500	4.069	[illegible]	.10048	.12116	-.01778	.00490	.00142	-.00196	.09161	.12798	.71581
2.500	8.140	[illegible]	.23518	.11747	-.02857	.00493	.00097	-.00226	.21815	.14983	1.45597
2.500	12.227	[illegible]	.37839	.11337	-.03672	.00494	.00051	-.00264	.34572	.19131	1.80715
2.500	16.306	[illegible]	[illegible]	.11025	-.04635	.00457	.00005	-.00284	.47188	.25291	1.86579
2.500	20.435	[illegible]	[illegible]	.10774	-.05289	.00494	.00005	-.00300	.60078	.33913	1.77179
2.500	24.553	[illegible]	[illegible]	.10435	-.05991	.00511	.00001	-.00439	.72905	.44494	1.62140
2.500	28.654	[illegible]	[illegible]	.09932	-.06670	.00559	-.00008	-.00274	.84548	.57219	1.46377
2.500	32.749	[illegible]	[illegible]	.09468	-.06260	.00633	-.00063	-.00337	.95575	.72756	1.31345

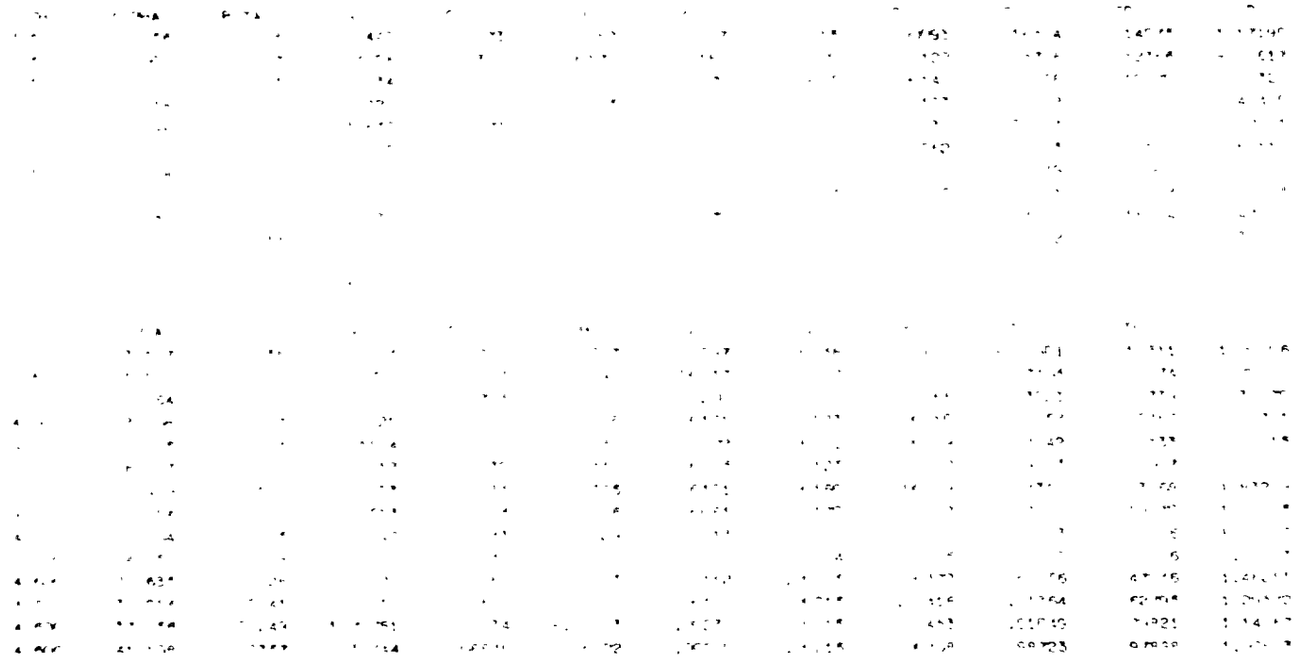
RUN NO. 45/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.851	[illegible]	-.08681	.[illegible]	-.02058	.00556	.00135	-.00302	-.11418	.10742	-1.06292
4.600	[illegible]	[illegible]	-.02914	[illegible]	-.01976	.00517	.00092	-.00460	-.07965	.09851	-.80855
4.600	.441	[illegible]	[illegible]	[illegible]	-.02147	.00468	.00048	-.00523	-.03733	.09071	-.41152
4.600	4.524	[illegible]	.11094	.08694	-.02251	.00392	.00005	-.00184	.09906	.08743	1.10363
4.600	8.603	[illegible]	[illegible]	.08372	-.02300	.00313	.00001	-.00376	.04805	.08773	.54768
4.600	8.603	.05999	[illegible]	[illegible]	-.02349	.00277	-.00030	-.00327	.14143	.10182	1.41451
4.600	12.687	[illegible]	.25034	[illegible]	-.02536	.00293	-.00025	-.00283	.24860	.13625	1.82456
4.600	16.771	[illegible]	[illegible]	[illegible]	-.02625	.00291	-.00026	-.00227	.35513	.19022	1.86786
4.600	20.855	[illegible]	[illegible]	.08264	-.02667	.00341	-.00038	-.00317	.47578	.20641	1.79592
4.600	24.934	[illegible]	[illegible]	.08466	-.03230	.00408	-.00052	-.00517	.59557	.36746	1.62079
4.600	29.658	.02181	.89317	.08666	-.04090	.00494	-.00139	-.00259	.73379	.51759	1.41772
4.600	32.956	.02275	1.03651	.08882	-.04738	.00563	-.00255	-.00401	.82141	.63839	1.28668
4.600	36.910	.02295	1.20864	.09048	-.05710	.00622	-.00255	-.00469	.91206	.79821	1.14263
4.600	41.127	.02398	1.39576	.09095	-.06730	.00699	-.00255	-.00762	.99154	.98654	1.00506

JA-49 JPWT 1101 3898/139 ORB SPLIT ELEVON (RHJ019)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	-10.000
ELV-LI =	-20.000	ELV-RI =	-20.000
ELV-RO =	-30.000	BDFLAP =	.000
SPOIL =	25.000	ELEVTR =	-20.000
AILRON =	10.000		



LA-49 UPWT 1101 RI-0898/139 CRB SPLIT ELEVON (RHJ016)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	10.000
ELV-LI =	-20.000	ELV-RI =	-20.000
ELV-RO =	-10.000	BDFLAP =	.000
SPDBRK =	25.000	ELEVTR =	-20.000
AILRON =	10.000		

RUN NO. 35/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.047	.02087	-.15369	.12521	-.00164	.00140	-.00044	-.00103	-.14447	.13575	-1.06426
2.500	-.017	.02198	-.01961	.12165	-.01338	.00166	-.00089	-.00146	-.01957	.12165	-.16087
2.500	.049	.02196	.11837	.11818	-.02844	.00203	-.00133	-.00029	.10973	.12624	.86922
2.500	8.128	.02407	.25261	.11579	-.03971	.00253	-.00178	-.00218	.23370	.15034	1.55445
2.500	12.235	.02429	.39762	.11330	-.04898	.00301	-.00178	-.00254	.36458	.19499	1.86971
2.500	16.312	.02398	.53997	.11119	-.05862	.00358	-.00200	-.00151	.48700	.25838	1.88485
2.500	20.434	.02533	.70124	.10841	-.06631	.00414	-.00223	-.00292	.61927	.34641	1.78764
2.500	24.535	.02572	.85447	.10542	-.07369	.00498	-.00247	-.00292	.74264	.45487	1.63266
2.500	28.639	.02578	1.03679	.10090	-.08567	.00526	-.00281	-.00244	.86158	.58548	1.47157
2.500	32.751	.02660	1.21993	.09667	-.10015	.00574	-.00313	-.00307	.97369	.74128	1.31353

RUN NO. 17/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.608	.02248	-.10668	.09361	-.03033	.00109	-.00163	-.00403	-.10056	.10013	-1.00426
4.600	-1.603	.02211	-.06501	.08971	-.02877	.00104	-.00164	-.00304	-.06247	.09149	-.68282
4.600	.475	.02170	-.02364	.08622	-.02998	.00117	-.00164	-.00198	-.02435	.08602	-.28309
4.600	2.457	.02264	.02188	.08347	-.02975	.00095	-.00207	-.00336	.01828	.08433	.21675
4.600	4.433	.02224	.06333	.08072	-.03028	.00107	-.00208	-.00232	.05690	.08538	.66644
4.600	8.437	.02225	.16597	.07773	-.03089	.00158	-.00208	-.00240	.15277	.10124	1.50904
4.600	12.504	.02293	.27978	.07525	-.03343	.00244	-.00294	-.00201	.25618	.13696	1.87044
4.600	16.403	.02389	.40554	.07933	-.03584	.00295	-.00294	-.00406	.36647	.19120	1.91665
4.600	20.958	.02311	.56867	.08355	-.03930	.00397	-.00295	-.00260	.50117	.28143	1.78079
4.600	24.681	.02411	.70890	.08587	-.04390	.00483	-.00339	-.00418	.60828	.37404	1.62625
4.600	28.652	.02484	.87018	.08795	-.05298	.00589	-.00402	-.00506	.72145	.49442	1.45919
4.600	32.865	.02537	1.05043	.09059	-.06315	.00657	-.00465	-.00544	.83316	.64612	1.28949
4.600	36.844	.02549	1.23056	.09279	-.07344	.00698	-.00464	-.00589	.92898	.81203	1.14403
4.600	41.541	.02607	1.43615	.09314	-.08682	.00742	-.00548	-.00538	1.01316	1.02210	.99125

LA-49 CPWT 1101 R1-0898/139 CRB SPLIT ELEVON (RHJ017)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	10.000
ELV-LI =	-40.000	ELV-RI =	-40.000
ELV-RO =	-10.000	BDFLAP =	.000
SPDBRK =	25.000	ELEVTR =	-40.000
AILRON =	10.000		

RUN NO. 36/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.081	.02102	-.18425	.13852	.01361	.00151	-.00001	-.00240	-.17407	.14928	-1.16605
2.500	-.012	.02101	-.04410	.13429	.00046	.00178	-.00045	-.00123	-.04407	.13430	-.32815
2.500	4.070	.02183	.09800	.12779	-.01676	.00207	-.00089	-.00128	.09869	.13442	.65975
2.500	8.141	.02282	.23813	.12351	-.02979	.00267	-.00134	-.00155	.21824	.15599	1.39906
2.500	12.234	.02347	.38075	.11893	-.03845	.00325	-.00156	-.00193	.34690	.19691	1.76168
2.500	16.324	.02440	.52995	.11563	-.04906	.00373	-.00201	-.00211	.47608	.25993	1.83162
2.500	20.430	.02573	.69091	.11267	-.05793	.00420	-.00224	-.00347	.60812	.34676	1.75374
2.500	24.533	.02607	.85456	.10972	-.06631	.00466	-.00248	-.00338	.73186	.43464	1.60975
2.500	28.666	.02625	1.02533	.10649	-.07616	.00531	-.00283	-.00308	.84957	.58529	1.44983
2.500	32.759	.02619	1.20471	.10247	-.08920	.00570	-.00315	-.00244	.95756	.73804	1.29759

RUN NO. 18/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.543	.02267	-.11803	.09656	-.02494	.00106	-.00164	-.00449	-.11184	.10367	-1.07878
4.600	-1.615	.02229	-.07634	.09253	-.02340	.00101	-.00165	-.00350	-.07370	.09464	-.77876
4.600	.420	.02184	-.03096	.08884	-.02455	.00097	-.00165	-.00233	-.03161	.08861	-.35673
4.600	2.337	.02280	.01052	.08565	-.02577	.00093	-.00208	-.00378	.00702	.08600	.08166
4.600	4.442	.02231	.05959	.08211	-.02757	.00106	-.00208	-.00251	.05305	.08648	.61343
4.600	8.536	.02230	.16595	.07867	-.02812	.00174	-.00209	-.00251	.15243	.10243	1.48808
4.600	12.569	.02263	.27612	.07898	-.02933	.00242	-.00252	-.00232	.25231	.13718	1.83930
4.600	16.491	.02333	.40570	.08090	-.03306	.00294	-.00253	-.00423	.38605	.19274	1.99923
4.600	20.728	.02328	.55737	.08452	-.03534	.00395	-.00298	-.00301	.49138	.27633	1.77825
4.600	24.709	.02422	.70510	.08780	-.03913	.00498	-.00340	-.00446	.60384	.37450	1.61239
4.600	28.738	.02498	.86262	.09008	-.04755	.00567	-.00403	-.00543	.71306	.49373	1.44424
4.600	33.023	.02551	1.04669	.09320	-.05626	.00654	-.00466	-.00577	.82681	.64857	1.27482
4.600	37.030	.02603	1.22659	.09622	-.06516	.00695	-.00508	-.00619	.92127	.81551	1.12969
4.600	41.135	.02654	1.40613	.09771	-.07614	.00754	-.00550	-.00657	.99480	.99862	.99617

LA-49 UPWT 1101 RI-0038/139 ORB SPLIT ELEVON (RHJ018)

PARAMETRIC DATA

BETA =	.000	ELV-LO =	-20.000
ELV-LI =	-30.000	ELV-RI =	-30.000
ELV-RO =	-40.000	BDFLAP =	.000
SPOSPK =	25.000	ELEVTR =	-30.000
AILRON =	10.000		

RUN NO. 37/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
2.500	-4.060	.01765	-.20014	.13741	.02461	.00127	.00112	-.00054	-.18991	.15123	-1.25573
2.500	-.001	.01853	-.05980	.13309	.01004	.00089	.00068	-.00066	-.05960	.13309	-.44784
2.500	4.053	.01903	.08252	.12711	-.00498	.00136	.00046	-.00085	.07334	.13262	.55295
2.500	8.150	.01997	.21922	.12273	-.01654	.00139	.00070	-.00274	.19961	.15257	1.30829
2.500	12.229	.02051	.36097	.11658	-.02465	.00084	.00047	-.00308	.32809	.19039	1.72324
2.500	16.322	.02105	.50624	.11296	-.03381	.00038	.00024	-.00329	.45410	.25067	1.81151
2.500	20.432	.02171	.66403	.10960	-.03891	.00046	.00046	-.00488	.58399	.33452	1.74574
2.500	24.572	.02163	.82543	.10543	-.04501	-.00012	.00044	-.00479	.72714	.43864	1.61214
2.500	28.643	.02133	.99262	.10149	-.05189	.00014	-.00013	-.00315	.88250	.55488	1.45606
2.500	32.766	.02099	1.17318	.09686	-.05870	.00024	.00023	-.00334	.93409	.71639	1.30394

RUN NO. 19/ 0

MACH	ALPHA	BETA	CN	CA	CLM	CBL	CYN	CY	CL	CD	L/D
4.600	-3.240	.02000	-.12657	.10157	-.01416	.00309	.00048	-.00303	-.12063	.10856	-1.11114
4.600	-1.501	.02041	-.06663	.09732	-.01406	.00288	.00047	-.00460	-.08605	.09961	-.86388
4.600	.388	.02056	-.04664	.09280	-.01590	.00215	.00004	-.00343	-.04726	.09248	-.51104
4.600	2.592	.02141	.05279	.08925	-.01762	.00158	-.00039	-.00462	-.00120	.08829	-.01361
4.600	4.560	.02104	.03721	.08442	-.01871	.00137	-.00040	-.00334	.04533	.08830	.51339
4.600	8.542	.02136	.15172	.07981	-.01857	.00083	-.00083	-.00334	.13818	.10146	1.36195
4.600	12.760	.02158	.27016	.07552	-.02024	.00064	-.00127	-.00285	.24592	.13722	1.79215
4.600	16.964	.02148	.38132	.07063	-.02006	.00027	-.00129	-.00526	.34315	.18479	1.85097
4.600	20.793	.02204	.47392	.06324	-.01878	.00023	-.00130	-.00411	.42001	.24662	1.76284
4.600	24.916	.02204	.58232	.05577	-.02178	.00021	-.00178	-.00544	.52338	.36413	1.60213
4.600	28.896	.02289	.84442	.08712	-.02662	.00019	-.00156	-.00649	.69719	.48431	1.43957
4.600	32.792	.02266	1.00640	.09942	-.03213	.00035	-.00218	-.00477	.79759	.62023	1.28595
4.600	36.900	.02337	1.18657	.09143	-.03962	.00041	-.00176	-.00793	.89399	.78555	1.13804
4.600	41.739	.02318	1.39654	.09159	-.04939	.00066	-.00176	-.00761	.98109	.99808	.98298